

DOCUMENT RESUME

ED 190 695

UD 020 771

TITLE Minimum Teaching Essentials, Grades K-9.
INSTITUTION New York City Board of Education, Brooklyn, N.Y. Div. of Curriculum and Instruction.
REPORT NO NYCBE-CB-01-0000-81
PUB DATE 79
NOTE 796p.: Guide developed by the Center for Curriculum Development. For a related document see ED 181 128.
AVAILABLE FROM Board of Education of the City of New York, Publications Sales Office, 110 Livingston Street, Brooklyn, NY 11201 (\$8.50: Make checks payable to Auditor, Board of Education).
EDRS PRICE MF05/PC32 Plus Postage.
DESCRIPTORS *Board of Education Policy; *Core Curriculum; Curriculum Guides; Elementary Education; Junior High Schools; *Minimum Competencies; *Teaching Methods
IDENTIFIERS *New York (New York)

ABSTRACT

The purpose of this bulletin is to provide administrators, teachers, parents, and other members of the New York City educational community with a resource that identifies, within all disciplines, the basic body of knowledge and skills to be taught at each grade or level (K-9). The bulletin begins with a broad perspective of each subject area, highlighting major components of individual disciplines and indicating the role each plays in the educational process. Areas covered include art, bilingual education, career education, foreign language, health education, home economics, industrial arts, library media, mathematics, music, physical education, science, social studies, typewriting, and work study. More detailed sections follow on (1) communication arts (integrating reading and language arts), (2) English as a Second Language, (3) foreign languages in grades 3-5, (4) child development focus and work study skills, and (5) special subjects in the intermediate/junior high school. In these sections, each page presents content area and/or topics with descriptors for specific skills and knowledge. References are provided to other Board of Education bulletins, when available. In some cases, suggestions are offered for the amount of time to be devoted to a particular topic. A list of additional curriculum publications is appended to the bulletin. (Author/GC)

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MINIMUM TEACHING ESSENTIALS

Grades  K-9

BOARD OF EDUCATION OF THE CITY OF NEW YORK
CENTER FOR CURRICULUM DEVELOPMENT • DIVISION OF CURRICULUM & INSTRUCTION

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
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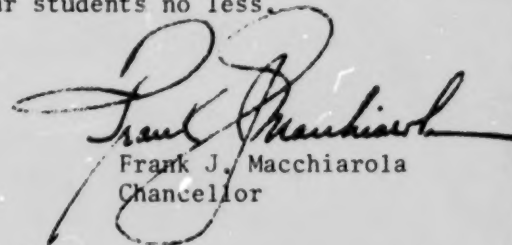
See subject cover page for individual listings.

Foreword

Decentralization imposes upon District Community School Boards the responsibility to control and operate, in a form consistent with the policies of the Central Board of Education, all pre-kindergarten, nursery, kindergarten, elementary, intermediate, and junior high schools. Community Boards also decide matters of instruction and select textbooks and ancillary materials, subject to the prior approval of the Chancellor. Decentralization thus allows districts the flexibility and differentiation necessary to meet the varying needs of their students.

At the same time, the decentralization law also continues the power vested in the Office of the Chancellor to "promulgate minimum educational standards and curriculum requirements for all schools and programs throughout the city district."* It is hoped that Minimum Teaching Essentials K-9 will provide every educator with the knowledge of what must be taught in content and basic skills for each grade level in all curriculum areas, thus offering every student an instructional program governed by the approved curriculum. Presenting such essentials is also a step toward creating the continuity of instruction desirable for a city with high pupil mobility.

Students in most classrooms will be taught more than is specified as a minimum. Supervisors and teachers will innovate, enrich, and extend curricula whenever possible. But this bulletin forms the teaching base required to maintain education standards and ensure appropriate learning opportunities in every classroom. We can offer our students no less.



Frank J. Macchiarola
Chancellor

* New York State Education Law, Article 52, paragraph 2540-h.

The curriculum publication, Minimum Teaching Essentials K- was initiated by Irving Anker, former Chancellor of the New York City Public School System. Both the experimental and the revised editions were prepared as projects of the Division of Curriculum and Instruction, Arnold Webb, Executive Director.

Grateful appreciation is extended to all the supervisors and staff of the Centers within the Division of Curriculum and Instruction. Without their support, cooperation and expertise, this document would not have been possible. Charlotte Frank, Director of the Center for Curriculum Development, was responsible for coordinating the contributions of the subject area Centers and preparing the manuscript for publication. The supervisors who were responsible for development of the materials are listed below under their contributing Center.

Acknowledgments

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Special thanks is extended to teachers, school and
district supervisors and members of institutions of
higher education whose suggestions have contributed
greatly to this document.

Because of the large number of individual contributors,
names have been listed in the section entitled Credits.

This revised edition of Minimum Teaching Essentials K-9 presents the minimum in basic skills and knowledge which must be taught within each curriculum area. It does not constitute the full scope of the various courses of study. It should also be noted that this publication does not include teacher methodology, student attitudes and appreciations, or moral and ethical values. Previously published bulletins provide the necessary support to help education design and implement the complete and appropriate curriculum. The purpose of this document is to provide administrators, teachers, parents, and other members of the educational community with a comprehensive resource which identifies, within all disciplines, the basic body of knowledge and skills to be taught at each grade or level.

Introduction

The organization of the bulletin begins with a broad perspective of each subject area. These statements highlight the major components of the individual disciplines and indicate the role each area plays in the total educational process. Statements of the philosophy, goals, and guidelines for bilingual education are included. Career education is represented with basic understandings for each grade.

Reading and language arts are integrated as "communication arts," reflecting the interdependent nature of listening, speaking, reading and writing. This arrangement also reinforces the principle that specific reading skills are a means to increase students' abilities to read for pleasure and information, and are not ends in themselves. The communication arts section is presented in uninterrupted sequence K-9 and precedes the other subject areas.

A child development focus appears before grades K-2, 3-5, and 6-9. This section reviews children's basic psychological needs, and the physical, socio-emotional, and intellectual growth patterns expected of a particular age group. The work-study skills used in all subject areas are presented in chart form for K-2, 3-5, and 6-9.

English as a second language and foreign languages in the elementary school (FLES) are also treated by levels and precede the subjects which are grouped by grade. Specialized subjects for the intermediate or junior high school are presented course by course. These are: foreign languages, home economics, industrial arts, and typewriting.

All other curriculum subjects within a grade level are grouped together, i.e., for the third grade the order is art, health education, library-media, music, physical education, science, and social studies. Each page presents content area and/or topics with descriptors for specific skills and knowledge. References for suggested classroom implementation are keyed to existing bulletins where relevant. Bulletin titles are found on the first page of subject areas for each grade. Some subjects offer suggestions for the number of days or weeks to be devoted to a topic within that area.

The publication of this bulletin represents a major step in establishing minimum curriculum essentials. The translation of these standards into effective learning for every student will be realized only with the creative skill and dedication of all of us in the educational community of New York City.

Arnold Webb
Executive Director

Overview of Curriculum Areas

ART

Growth in art expression is part of the total growth of the child. When the experience which motivates the art is child centered, authentic, and personal, the art product will ring true.

The child gains power in self-expression when the art experiences have continuity, when they provide leeway for self-evaluation, and when they build upon cumulative skills in the making of art products.

All children need rich art experiences which are integral to their total physical, perceptual, mental and social development.

BILINGUAL EDUCATION

One of the most fundamental and universally acceptable concepts in education is that an instructional program should utilize the student's already acquired language skills and thought processes as a basis for fostering intellectual development and mastery of the basic skills of communication and reasoning. This concept is equally valid for all pupils, and it is especially appropriate for students living within our society whose language and culture differ from our own. Educational success for linguistically different students is enhanced by permitting them to learn in their first language while they are learning to function successfully in English. Thus, they will have an opportunity to be better prepared to participate meaningfully within their new environment. The primary goals of a bilingual education program are excellence in both languages and the development of basic skills. The inherent validity of these goals makes it clear that bilingual programs can be made available to all pupils within our system for the purpose of enriching their educational and life experiences. It is felt that this comprehensive approach will lead to the preparation of an individual who will be capable of leading a full and productive life, possessing the ability to adapt to new demands, opportunities, and values in a constantly changing world.

Bilingual education has been defined as the use of two languages as mediums of instruction for the same pupil population in a well-organized program which encompasses part or all of the regular curriculum and which includes the study of the history and culture associated with both languages. In the United States, of course, one of the two languages will be English. The bilingual program incorporates an interdisciplinary approach which includes all the required curriculum areas that are part of the traditional school program. Thus, for example, the mathematics curriculum will include the same scope and sequence made available to other students, the only difference being the use of a language other than English as the vehicle for instruction.

ELEMENTS OF A BILINGUAL PROGRAM

Every bilingual program which sets the aforementioned goals and objectives should include the following elements:

PROVISION FOR THE REINFORCEMENT AND SEQUENTIAL DEVELOPMENT OF THE PUPIL'S DOMINANT LANGUAGE

It provides for language arts instruction in the pupil's native language, in which the four language skills will be developed sequentially, e.g., listening, speaking, reading, and writing. Thus, we use the language in which the child has already acquired the sound system, basic structure, and vocabulary in the development of cognitive as well as other skills.

DEVELOPMENT OF THE ABILITY TO UNDERSTAND, SPEAK, READ, AND WRITE A SECOND LANGUAGE

The student begins immediately to learn the second language through the utilization of a sequentially based methodology in second language teaching. A typical English as a second language program will begin with an emphasis on aural and oral skills, and gradually reaches the stage where the student can advance to reading and writing.

PROVISION FOR SEQUENTIAL INSTRUCTION IN THE STUDENT'S NATIVE LANGUAGE IN THE CURRICULUM AREAS CONSISTENT WITH THE ESTABLISHED REQUIREMENTS FOR THE CITY'S SCHOOLS

Content areas which are considered to be critical to the intellectual and emotional development of students and to their success in the school environment are initially taught through the use of their first language, thereby permitting and encouraging them to enter and participate immediately in all classroom activities and draw from previous experiences as bases for developing new ideas and concepts.

DEVELOPMENT, REINFORCEMENT, AND ENRICHMENT OF
STUDENTS' APPRECIATION AND KNOWLEDGE OF THEIR
OWN HISTORY AND CULTURE, AS WELL AS THE HISTORY
AND CULTURE ASSOCIATED WITH THE SECOND LANGUAGE

The historical contributions and cultural characteristics identified with the people representing both linguistic communities are an integral part of the program. Relationships, similarities, and differences are presented in the social development of state, nation, and community, in order to create an understanding and appreciation of each in a positive rather than a negative sense.

By providing the opportunities for successful participation and achievement, students are encouraged to develop acceptance of themselves and of others through social interaction.

BILINGUAL EDUCATION

Career education is an educational approach which seeks to provide students with the knowledge and skills necessary for becoming self-fulfilled and productive members of society. It incorporates large components of the humanistic and experiential learning movements, and seeks to educate the total person. It is as concerned with the development of basic academic skills as it is with the development of career awareness and occupational skills. It seeks to expand, not narrow, the learner's career horizons by incorporating into the regular curriculum concepts of personal growth and career development. Career education is a process, not a product. It is a process which seeks to make the educational experience more meaningful through bridging the gap between what is taught in the classroom and what the learner perceives as going on in the "real" world.

CAREER EDUCATION

To accomplish this, it offers a variety of strategies sculpted around the concept of working its eight essential elements into the classroom on a daily basis. These elements are:

- | | |
|------------------------------|-------------------------|
| .self awareness | .educational awareness |
| .decision-making skills | .career awareness |
| .attitudes and appreciations | .beginning competencies |
| .economic awareness | .employability skills |

Such elements as career awareness, educational awareness, and economic awareness seek to inform the learner of the broad vista of career possibilities; establish a link between what is being taught in school and what goes on in the world outside the classroom, and give the learner an understanding of the roles of consumer, producer, and provider as these operate in the larger economic society.

Such elements as self-awareness, decision-making skills, and attitudes and appreciations seek to give learners insight into their own abilities, interests, and thought processes; and help them understand the dynamics of decision-making:

foreseeing consequences, considering alternatives, making a decision, acting on it, and assessing the outcome; provide them with decision-making experiences in real and simulated situations; assist them in exploring personal values, and in relating these values to school experiences and possible career options.

Such elements as beginning competencies and employability skills seek to give learners a strong foundation of basic academic and manipulative skills essential to success in school and work and provide them with the specific skills necessary for further education or training, or for entry-level employment. An emphasis on "hands-on," learning by doing, is a shaping factor of all career education.

The main strategy for implementing career education in the classroom is infusion. Infusion is the incorporation of at least one of the eight career education elements mentioned above into the regular curriculum, giving the resultant lesson, be it math, science, language arts, social studies, or some other subject area, a career education focus (see diagram).

Career education is much more, then, than just teaching about jobs. On the following pages, basic understandings for each grade, K - 9, are presented to provide a framework for career education implementation at the classroom level. These outcomes are adapted from the National Career Education Model Goal Statements.

REGULAR CURRICULUM
TOPICS

Selected Topic

INFUSED LESSON

Approach and presentation of topic changed through incorporating the career education element(s)

CAREER EDUCATION
8 ELEMENTS

Selected Career Education Elements(s)

In addition to the infusion of a career education element, occupational information may frequently be incorporated in a lesson. The Basic Occupational Clusters into which careers are grouped are:

Health
Marine Science
Consumer and Homemaking Education
Manufacturing
Marketing and Distribution
Public Service
Agri-Business and Natural Resources
Communications and Media

Transportation
Fine Arts and Humanities
Personal Services
Construction
Environment
Business and Office
Hospitality and Recreation

CAREER EDUCATION KINDERGARTENELEMENTBASIC UNDERSTANDING

SELF AWARENESS

The individual has rights and responsibilities at home and at school.

DECISION MAKING

Decisions are based on motivating causes and lead to resultant consequences.

ATTITUDES AND APPRECIATIONS

Each person is an important component of the home unit.

CAREER AWARENESS

People at home and at school have different jobs.

ECONOMIC AWARENESS

Some items are available in the home unit; others are needed, and still others are wanted.

EDUCATIONAL AWARENESS

Similar kinds of roles exist at home and in school.

BEGINNING COMPETENCY

Specific tools are necessary to specific kinds of work.

EMPLOYABILITY SKILLS

Sharing and cooperation are necessary to complete many tasks.

CAREER EDUCATION GRADE ONE

ELEMENT

BASIC UNDERSTANDING

SELF AWARENESS

The individual is valuable as a person and as a part of a group.

DECISION MAKING

An individual's decisions have personal consequences.

ATTITUDES AND APPRECIATIONS

Each member of the group in the school setting has something to contribute to the whole.

CAREER AWARENESS

Jobs done by people at home and people in school relate to the functioning of the general community.

ECONOMIC AWARENESS

The community depends upon the exchange of goods and services.

EDUCATIONAL AWARENESS

Roles in school have similarities to and differences from roles at home.

BEGINNING COMPETENCY

Mastery of basic skills is essential to success in school.

EMPLOYABILITY SKILLS

Each individual develops rules with others, accepts direction, and takes responsibility.

CAREER EDUCATION GRADE TWOELEMENTBASIC UNDERSTANDING

SELF AWARENESS

People have different capabilities and limitations.

DECISION MAKING

Problems can be analyzed for their alternative solutions.
These can be expressed verbally and in written form.

ATTITUDES AND APPRECIATIONS

Getting along with other people is important.

CAREER AWARENESS

There is an interdependency of jobs necessary to
maintain the community.

ECONOMIC AWARENESS

The barter system and the money exchange system
are two different ways to operate an economy.

EDUCATIONAL AWARENESS

Life roles in the community are related to the development
of basic skills.

BEGINNING COMPETENCY

There is a variety of communication tools which
affect lifestyle and career choice..

EMPLOYABILITY SKILLS

Ways of interacting affect achievement of individual
and group goals.

ELEMENT

BASIC UNDERSTANDING

SELF AWARENESS

Attitudes toward learning tools are important in achieving individual goals.

DECISION MAKING

There are various identifiable components to the decision-making process.

ATTITUDES AND APPRECIATIONS

Community members contribute to the everyday life patterns of students and others.

CAREER AWARENESS

Local jobs belong to the larger framework of jobs in general.

ECONOMIC AWARENESS

We are part of a monetary system.

EDUCATIONAL AWARENESS

Life roles have a foundation in learned skills.

BEGINNING COMPETENCY

Tools affect lifestyle and future career choice.

EMPLOYABILITY SKILLS

Conflicts between personal and group goals can be resolved in different ways.

ELEMENTBASIC UNDERSTANDING

SELF AWARENESS

Peer group members have different strengths and weaknesses.

DECISION MAKING

Goals are an important factor in lifestyle decisions.

ATTITUDES AND APPRECIATIONS

The wage earner's job affects the home unit.

CAREER AWARENESS

Jobs can be grouped into occupational clusters.

ECONOMIC AWARENESS

The production and distribution of goods and services are part of the overall economic process.

EDUCATIONAL AWARENESS

Individual success is related to mastery of educational skills.

BEGINNING COMPETENCY

Tools and simple machines are used to measure and extend energy.

EMPLOYABILITY SKILLS

Personal and group goals are developed by full participation in group activities.

CAREER EDUCATION GRADE FIVE

ELEMENT

BASIC UNDERSTANDING

SELF AWARENESS

The worker has both rights and responsibilities.

DECISION MAKING

The decision-making process can be applied to school-related problems.

ATTITUDES AND APPRECIATIONS

Working roles have advantages and disadvantages.

CAREER AWARENESS

Different lifestyles are associated with each occupational cluster.

ECONOMIC AWARENESS

There is a law of supply and demand.

EDUCATIONAL AWARENESS

The role of the individual is related to environment and to the roles of selected adults.

BEGINNING COMPETENCY

Mass production calls for division and specialization of labor. Measurement tools can be mastered.

EMPLOYABILITY SKILLS

The school environment is related to the larger society and has similar needs for structure and order.

CAREER EDUCATION GRADE SIX

ELEMENT

BASIC UNDERSTANDING

SELF AWARENESS

An understanding of one's strengths and preferences helps in the selection of appropriate career clusters.

DECISION MAKING

The decision-making process can be applied to home and social-related problems.

ATTITUDES AND APPRECIATIONS

Personal growth and development are tied to one's occupational endeavors.

CAREER AWARENESS

Occupational clusters and the jobs within them require specific abilities and skills.

ECONOMIC AWARENESS

Specialization creates an interdependent society.

EDUCATIONAL AWARENESS

Reading, writing, number skills, and science are used in various occupational areas.

BEGINNING COMPETENCY

Tools and processes are used in research. Simple machines combine to produce complex machinery

EMPLOYABILITY SKILLS

The individual's role in society affects personal satisfaction and group achievement and morale.

CAREER EDUCATION GRADE SEVEN

ELEMENT

BASIC UNDERSTANDING

SELF AWARENESS	Interests and abilities are related to choice of occupational cluster.
DECISION MAKING	Alternative solutions to problems have different long and short-term effects.
ATTITUDES AND APPRECIATIONS	The value of work is not necessarily tied to its monetary rewards or social status.
CAREER AWARENESS	Attitudes and values relate to choice of occupational cluster.
ECONOMIC AWARENESS	Management of finances implies an understanding and control of earning, spending, borrowing, and saving.
EDUCATIONAL AWARENESS	Personal values relate to lifestyle.
BEGINNING COMPETENCY	Tools and processes used in research in the physical and social sciences can be mastered. A variety of tools is used in the different occupational clusters.
EMPLOYABILITY SKILLS	Social and personal relationships have an effect upon employment.

CAREER EDUCATION GRADE EIGHT

ELEMENT

BASIC UNDERSTANDING

SELF AWARENESS

Perception of abilities and interests is related to career choice.

DECISION MAKING

The decision-making process is applicable to choice of careers.

ATTITUDES AND APPRECIATIONS

The impact of work upon one's life necessitates meaningful career choices.

CAREER AWARENESS

Occupational clusters draw upon specific areas of interest and ability.

ECONOMIC AWARENESS

The cost of entering a career relates to future expected income.

EDUCATIONAL AWARENESS

There is a relationship between lifestyle and educational achievement.

BEGINNING COMPETENCY

Basic tools found in the occupational clusters can be mastered.

EMPLOYABILITY SKILLS

Personal and social interaction skills are related to occupational success.

CAREER EDUCATION GRADE NINE

ELEMENT

BASIC UNDERSTANDING

SELF AWARENESS

A better perception of reality comes from an awareness of where one is as compared to where one would like to be.

DECISION MAKING

Career decisions can be analyzed and refined in the light of counseling, work experience, and new information.

ATTITUDES AND APPRECIATIONS

Occupational clusters draw upon specific attitudes and appreciations.

CAREER AWARENESS

An understanding of interests, values, and abilities is essential to a study of occupational choices.

ECONOMIC AWARENESS

Interpreting tables, graphs, and charts is important to the consumer.

EDUCATIONAL AWARENESS

A personal schedule assists in the acquisition of necessary and desired special skills.

BEGINNING COMPETENCY

Skills and processes can be matched with specific career clusters.

EMPLOYABILITY SKILLS

Specific skills are necessary to find and hold a job and to succeed in one's chosen occupational field.

2-

The foreign language program of the New York City public schools encompasses a wide range of foreign language offerings, specifically Chinese, French, German, Modern Greek, Italian, Hebrew, Latin, Russian, Spanish, Swahili, and Yiddish.

The emphasis in foreign language teaching is on communication. What is attempted is to teach language functionally from the very beginning and to develop the four basic language skills, namely the ability to speak with reasonable fluency, to understand a native speaker of the language, to comprehend the printed page, and to write in the foreign language within reasonable limits. The skills are developed by means of maximum use of the foreign language in the classroom and a variety of activities, such as dialogues, role playing, dramatization, situation simulation, the use of electronic aids, and many others.

FOREIGN LANGUAGES

Concurrent with language study there is also the attempt to understand the culture of the people whose language is studied, from the point-of-view of both cultural achievements and everyday life, customs and values.

Basic to effective foreign language teaching is the recognition of individual differences, specifically differences in learning rate, learning styles, motivations, goals, interests and needs. Modifications in curricular content, activities and approaches are necessary to accommodate these differences.

With our increased attention to the current health issues of nutrition, environmental stress, drug and alcohol abuse, overpopulation, and the inequality of health care, the concern for the health of our children is perhaps greater today than ever before.

Health education of the school-age child supplements and reinforces efforts at home and in the community. This education for health represents a major challenge to our society. While the causes of many of today's health problems are known, and to a great extent preventable, we nevertheless find that children are unwilling or unable to make the proper choices for better health.

The emphasis in health education, therefore, must be in helping the pupil-learner make informed decisions about his or her health behavior. To be successful in this regard, children should be personally involved in defining their own goals and actions, while guided by parents and teachers toward evolving an acceptable means for achieving positive health behavior within their own framework of values, beliefs, and resources.

HEALTH EDUCATION

Such changes in behavior, to be long-lasting and practiced regularly, must be a personal decision. While there are many factors that enter into the decision-making process, our primary responsibility is in providing children with a body of knowledge as a starting point. The information contained in this publication is intended to assist in this learning process. Though it provides the basic health learnings for the district schools, it should be noted that other curriculum resources are available to help the classroom teacher in planning creative approaches to the health instructional program.

Health education can have a significant role in the school curriculum if recognized as an important means for achieving general human understanding and improving the quality of life. With support from the school and community, these worthy goals can be realized.

Home economics is an integral part of the school program. It aims to help boys and girls assume responsibilities as family members through sharing specific group experiences. Personal competencies are developed by mastering the skills of daily living. Manipulative skills are fundamental and involved with other learnings such as: nutrition, consumerism, decision making, ecology, and the management of time, energy and money. Home Economics activities provide opportunities for pupils to apply skills learned in other curriculum areas. The Future Homemakers of America Clubs train participating youth for leadership. Home economics career education provides opportunities for intermediate and junior high school students to explore specific related clusters of occupations through mass production, enterprise experiences and field observations.

HOME ECONOMICS

The following areas are included in home economics:

- Foods and Home Experiences I
- Foods and Home Experiences II
- Foods and Home Experiences III
- Clothing and Home Experiences I
- Clothing and Home Experiences II
- Clothing and Home Experiences III
- Boutiquerie
- Child Care

Career Exploration:

- Orientation to the World of Work
- Consumer Service Careers
- Foods Careers
- Clothing and Fashion Careers
- Child Care Careers
- Housing Careers
- Interior Design Careers

Safety education is basic to everyday living. Focus on safe procedures is inherent in each home economics lesson. Experiences in the home economics class enable pupils to apply safe and efficient practical techniques through hands on activities. Housekeeping routines include the use, proper storage, and care of equipment and supplies. Pupils are constantly alerted to maintain a safe classroom environment. At the beginning of each home economics course there is basic safety instruction. Each pupil is tested and these records are kept on file. Appropriate safety instruction continues with immediate practical application in home economics lessons. The pupils are encouraged to apply safe practices and methods used in the home economics rooms to their own home situations. Each home economics room should contain the latest edition of the Board of Education's School Shop Safety Manual.

Industrial arts is an essential phase of general education. It aims to provide boys and girls in the elementary and secondary schools with an opportunity to acquire an appreciation and fundamental understanding of the highly technical and industrial world in which we live. It also aims to provide exploratory and experimental laboratory experiences which prepare our youngsters to be more useful members of their homes and their communities, more appreciative and intelligent as consumers and more valuable as citizens. Industrial Arts Grades 6-7-8-9 details fully our aims and objectives.

Via the hands-on activities, the construction of functional projects, and the interdisciplinary approach inherent in all industrial arts programs, students become highly motivated and aware of careers and career opportunities around us. The teacher provides an on-going program of related information lessons, enterprise experience, and mass production activities creating an educated sensitivity towards occupational possibilities. Shop management is an integral part of the program. Teachers should refer to Industrial Arts Shop Management for suggestions.

The following areas are included in this curriculum:

Wood	Special Education
Metal	Marine Technology
Plastics	Careers For Children
Drafting	Small Engine Repair
Ceramics	Enterprise Experience
Aerospace	Electricity/Electronics
Publications	Career Awareness Program
Photography	Publishing Activity Centers
Graphic Arts	General Industries Laboratories
Plant Ecology	Transportation/Power Dynamics
Driver Education	Communication Activity Center
Career Education	Elementary School Industrial Arts

INDUSTRIAL ARTS

Safety education is a vital and essential part of everyone's daily life. Continued emphasis on accepted shop safety procedures is encouraged in each of the industrial arts laboratories. Through exposure each student is able to develop safe working habits in his or her thinking, as in the skillful use of hand and power tools. In addition, each student is engaged in pupil personnel management responsibilities, encouraging organization and respect for the tools and machines which play such an important part in our lives. Each shop should contain the latest edition of the Board of Education's School Shop Safety Manual.

The library media program is a service, an instructional and management system shaped by the school's philosophy, its learning objectives, the characteristics of learners, teachers' skills, the curriculum, and the organization of the students for learning. The librarian's role is the implementing of this program so that learners can develop the ability to find, generate and apply information. The program provides:

- a systematic introduction to books, films, and recordings, and instruction in finding, analyzing and using information and creating new media;
- consultation services in the use of media resources, equipment, and facilities for the improvement of instruction;
- environments which foster the effective use of media resources, both human and material;
- production of materials created to meet specific needs of students and teachers.

The Library Media Center is a laboratory where the use of all resources is purposeful, planned and integrated with classroom teaching. Its use is intended to individualize instruction.

Although "library media" is not a subject area, it is related to all content areas. There are competencies and skills to be learned through repeated use of library resources in a variety of subject contexts. The four levels of development in the use of library media are sequentially:

- learning to use tools to locate materials
- learning to select material appropriate for the purpose and type of information needed
- learning various ways in which selected material can be used most effectively
- developing critical judgment in evaluating materials with regard to their suitability, accuracy, authenticity, bias and propaganda.

A complete skills program must include all four levels in each grade. The key to the success of the program is the integration of the teaching of library skills with classroom instruction. Attempts to teach skills in isolation may lead to student frustration and seriously impair the student's ability to use libraries independently and intelligently.

The mathematics curriculum involves the development of ideas and skills related to the areas of arithmetic, problem solving, measurement, geometry, probability, statistics, graphs, logical thinking and algebra.

The program is logical, systematic and developmental. The mathematics follows a spiral pattern in that the development of concepts and operations is repeated at increasing levels of difficulty.

In the primary grades, pupils manipulate, arrange and work with objects and other physical materials to observe relationships that can be symbolized in mathematical terms.

Beginning with collections of physical objects in the classroom, children move from non-verbalization to verbalization and symbolization. Operations are introduced with activities on sets of concrete objects. By exploration and play, children learn the number facts of arithmetic and the meaning of each operation in a concrete way.

At the same time that arithmetic concepts and skills are being developed, concepts from algebra, geometry, problem solving, and measurement are introduced. Children observe and later verbalize relations between numbers and their graphs on the number line. Fundamental operations with whole numbers, fractions, and decimals are developed gradually. Experimentation and discovery are methods used to help pupils develop an understanding of important properties of our number system, properties of geometric figures, and measurement ideas - both metric and customary.

In the intermediate and junior high school years, the scope of mathematics content is broadened to include more geometry, arithmetic, probability, and algebra. The students come to understand mathematics as a unified whole by perceiving interrelationships among concepts, skills and knowledges. They learn to apply the various branches of mathematics to science, industry, career and consumer education and citizenship. They come to appreciate mathematics as an indispensable tool for living in our technological society.

One of the reasons for the growth of music education has been the recognition of the important role that music plays in the life of the child. Through musical experiences the child grows in self-understanding, self-awareness and self-expression. Music is an area of the curriculum that is concerned primarily with subjective responses and affective growth.

Music as a spectator activity is rapidly diminishing. Children want more out of music than simply being a spectator on the sidelines. They want to "do" music. They want to make music with their voices; on a drum, guitar, steel drum, recorder, clarinet or any musical instrument.

MUSIC

Making music is an important form of individual expression; listening to music is a vital aspect of a more meaningful inner life. It is the school's responsibility to provide children with the opportunity and means of developing their natural musical talent to the utmost. They should be given the opportunity and the means to share in the making of music, alone, and in groups. They should be provided the atmosphere in which to appreciate the musical contributions of all people and to share in the wealth of the world's musical literature.

Music education must reach out to meet the needs of all children, from the serious music student to the child who wants only to enjoy music. Those for whom music has become a source of personal satisfaction become living testimonials to quality music education.

The goal of physical education is to provide children and youth with regular, planned, vigorous physical activities on a daily basis which will serve to promote physical fitness and cardiovascular efficiency and help to prevent heart disease. Additional benefits of physical education include socialization in a guided setting, an improved self-image, recognition of the talented and gifted student of dance, sports and gymnastics, and opportunity for the development of interests and leisure-time activities.

There is evidence that children perform better physically once they understand the concepts of movement. Therefore, movement education is essential in the elementary school grades. It is ideal for developing awareness of space, direction, pathways, levels, body parts and uses, manipulative skills, locomotor and non-locomotor skills. It offers experiences for individual performance, devoid of the constraints of group competition. In grades K-4, there is a stress on movement skills and activities such as song plays, rhythms, dance, simple stunts and games which reinforce and enhance movement concepts. In grades 5-6 movement concepts are reinforced and applied in stunts and tumbling, apparatus, team and individual sports, dance, and physical fitness. In grades 7-9 there is an even greater emphasis on participation in a variety of games, sports, dances, gymnastics, martial arts, and physical fitness which may serve students as lifetime activities and interests.

All activities are geared to both boys and girls in a coeducational setting, and are adaptable to the needs and interests of special (handicapped) students, as required by recent legislation.

It is expected that both classroom teachers in the elementary schools and physical education specialists in grades K-9 will be able to utilize the Minimum Teaching Essentials and the new curricula on which they are based.

In these times of great scientific advancement and opportunity, we are increasingly dependent upon a scientifically literate population. Our young people must be guided to explore, to discover, and to understand the scientific concepts which will be of value to people in a changing world. Science meets the needs of all pupils since it offers them endless opportunities to explore, to manipulate, and to discover as they strive to find the what, how, and why of the world around them. The pupil-oriented laboratory science program is designed to provide a variety of experiences in the form of laboratory investigations, demonstrations, trips, and projects which will appeal to all children of varying backgrounds and interests.

The design of the science program provides a set of basic experiences and instructions for which all pupils are responsible. Pupils are frequently exposed to familiar objects as a basis for study. New ideas, laboratory skills, and science vocabulary are introduced at a pace which permits easy assimilation. Understandings and interrelationships are constantly reinforced through frequent referral to previous studies. In addition, lessons and units contain concrete suggestions for stimulating a more in-depth study by providing extended enrichment studies for students whose interests and abilities warrant them.

The science content combines the two components of science instruction: process and knowledge. To accomplish this, the following approaches have been used in teachers' guides.

There has been a greater stress on the important concepts underlying each of the disciplines of physics, chemistry, biology, and earth science, and the interrelationships among them.

Laboratory investigations and experimentation have been integrated into the science lessons where student involvement would make the greatest impact. There has been a greater emphasis on critical thinking, investigation, and problem-solving as ways of learning.

The curriculum in history and the social sciences has been guided by several major considerations. These may be summarized as follows:

It emphasizes the teaching of concepts rather than the accumulation of data. The curriculum has been predicated on the same theory of learning that inspired recent changes in the teaching of science and mathematics. Instruction should focus on the development of critical thinking. The student must learn to "think as a scholar" -- to search out and deal with authentic source materials, to use techniques of inquiry and discovery, and finally, to arrive at conclusions supported by evidence.

It seeks to provide all students with the values, skills, understandings, and knowledge needed to cope with the pressing social problems of our age. We live in an era of change and challenge, a time when new and complex forces are reshaping our society. Students must recognize the sources of change and be prepared to deal effectively with issues raised by change. They must also strengthen their commitment to democratic values.

It attempts to incorporate basic concepts drawn from the disciplines of history and the social sciences. Each discipline offers a set of basic concepts variously known as "key ideas," understandings, or generalizations. These concepts provide a structure around which learning may be organized within each grade.

It attempts to develop skills and research techniques sequentially. The curriculum provides important tools for analysis and encourages the use of objective, rational methods in the study of contemporary problems.

SOCIAL STUDIES

It attempts to provide learning activities that aim at conceptualization through techniques of inquiry and discovery. Probing discussion questions, careful analysis of primary source materials, case studies of concrete social phenomena, the use of contrasting evidence to underscore man's varied social responses -- these and other strategies are used to obtain pupil interest and to develop understandings.

No one method, however, is mandated. Children learn in many different ways. The learning process justifies a variety of techniques or strategies and a wide range of teaching materials.

It emphasizes the use of multimedia resources rather than the traditional textbook. Especially useful are the audiovisual materials of instruction -- motion pictures, filmstrips, maps, globes, transparencies, 8 mm. single-concept films, programmed instruction, records, tapes, pictures and other non-book resources.

The middle school typing program is designed primarily to enable pupils to develop touch typing skills. The application of these skills extends to typing classroom notes, preparing term papers, preparing book reports in acceptable form, documenting homework, and other personal uses. Another objective of the program, as prescribed by the official curriculum guide, is to supplement instruction in English language art skills with emphasis on spelling, punctuation, syllabication, paragraphing, and capitalization.

Ideally, typewriting should be offered four or five periods a week for two consecutive semesters. This sequence and frequency of instruction assure acquisition of automatic skills for most pupils. It is the experience of teachers and supervisors of typewriting that typewriting programs of fewer than four periods per week for two consecutive semesters are neither effective nor productive since in many cases the desired skill is not acquired.

Typewriting lesson aims are specific, but need not be identified on the chalkboard in the usual style; however, they must be reasonably attainable. Teacher demonstration is vital to almost every lesson in typing; the demonstration may be individualized at the student's desk or presented on the demonstration typewriter. Pupil typing, preferably of meaningful material, should be the overwhelmingly dominant activity; pupil efforts must be guided and purposefully executed.

WRITING - KEYBOARD
MATERIAL AND SKILL
DEVELOPMENT
DES 7-9

Work study skills are those which students require in order to study, to work in class individually or in small groups, to do homework assignments and independent research projects, and to find information for purely personal needs and interests. These skills are used in all subject areas and are developed in a continuum. For example, a kindergarten child finds a picture file of farm animals and selects a cow to illustrate a story. An eighth grader uses the Readers' Guide to Periodical Literature to obtain articles on environmental pollution in N.Y.C. Both are locating and selecting information, just as a student following verbal instructions for setting up a terrarium and a student reading directions on a mathematics test are both using the skill of following directions.

In this bulletin work study skills used in all subject areas are presented for each of three levels, K-2, 3-5, 6-9. The skills are grouped in five categories: following directions; locating information; selecting, recalling, and evaluating information; organizing information; and using graphic representation and investigative tools.

WORK STUDY SKILLS

In addition, there is an emphasis on applying these skills to multimedia sources of information. We live in a world rich in communications media. Students need to be guided in developing responses, both to the information received and the effects of different media on the information presented. To do this students must be given opportunities for comparison and contrast.

The library-media center provides the means for meeting this need. Classroom teachers use the expertise of school librarians in cooperatively planning assignments which incorporate library research and media skills. Teachers and librarians also work jointly in helping children learn these skills. But it is the classroom teacher who must provide the impetus and perseverance necessary for students to acquire these skills in sustained and consistent use.

It is the responsibility of all teachers to (1) provide assignments which, in total, require all the work study skills for that level (2) to analyze which specific skills are needed to complete a particular assignment and (3) to make certain those specific skills are taught as an integral part of that assignment in every subject area. For the skills which require use of library resources, librarians have the responsibility to consult with the teachers on how specific skills may be applied to the topics teachers plan to teach.

Communication Arts

LISTENING, SPEAKING, READING, WRITING GRADES K-9

Kindergarten	41
Grade 1	43
Grade 2	47
Grade 3	51
Grade 4	55
Grade 5	59
Grade 6	63
Grade 7	67
Grade 8	70
Grade 9	73

Spoken and written language is the heart of the communication arts curriculum. The purpose of all language is to communicate. The speaker must speak so as to be understood; the listener must learn the skills of effective listening; the writer must develop the skills for communicating complex ideas; the reader needs all the complex skills necessary to absorb the written ideas of others.

In terms of education, increasing effectiveness in the four language processes -- listening, speaking, reading, and writing -- is based on two important premises:

When children arrive in school they already have achieved a degree of proficiency in at least one spoken language.

This ability is the beginning and the central tool for all learning which will ensue in the student's years of schooling.

As students mature physically and psychologically, their language skills spiral upward and outward together. The more words and ideas they can utter and understand, the more words and ideas they will be able to read and write.

COMMUNICATION ARTS

In the early grades, children learn to appreciate and tell stories, decipher the code of writing, make phonic-graphic correspondence, and relate stories and ideas to their own thoughts and feelings. At the same time they grow in organizing ideas, using the structure of language, increasing vocabulary and learning the basic skills of spelling and penmanship.

By the middle grades, students are ready to apply their reading skills to content areas -- science, mathematics, social studies. They grow in sophistication, listening more perceptively, expressing themselves more articulately, and writing more fully and in greater depth.

In grades 7-9 students are gradually broadening their experience in a variety of literary genres, including selections from the past and present and familiar and foreign cultures presented in a range of styles and viewpoints. At the same time they are gaining skill in specific strategies for obtaining information in the content areas. They are also acquiring critical viewing and listening skills for appreciation and evaluation of film, radio, and television. In their oral and written communication students are ready to develop style and greater clarity of expression.

Thus, the goal of the communication arts is the development of language power so that students may engage effectively in communication with others orally and in writing, react perceptively to the spoken and written word, gain information from written and recorded materials, and understand the effects of communication on thinking and behavior. Ultimately, the goal is to grow in human understanding, in sensitivity, in responsiveness, and in creativity. At all times the student must be made aware that all the processes and skills taught in the communication arts curriculum are a means to this desirable end.

The Minimum Teaching Essentials in Communication Arts is divided into three strands:

Listening and Speaking stresses perceptive listening and effective oral communication.

Reading and Literature emphasizes reading as a means of gaining pleasure and information while developing necessary processes and skills.

Writing is presented as expressional and functional with the conventions of writing taught only as aids for the primary purpose of writing -- communication with a reader.

The division of the curriculum into these strands is merely for ease of organization. In the classroom, listening, speaking, reading literature or content area materials, and writing are integrated in the learning experience.

This approach is holistic and ongoing. While the skills and knowledge presented at a grade level constitute the minimum which should be taught before children leave that grade, it does not mean that the same skills and knowledge may not be taught earlier or later. Language develops along a continuum and teachers are responsible for learning opportunities which engage the individual child, whatever his or her point on the continuum. Throughout the years of a child's education, learning in all strands of communication arts grows in depth and complexity as the child grows in confidence and maturity.

COMMUNICATION ARTS

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

LISTENING AND SPEAKING

Listening is preparatory to developing a discriminating ear for the sounds and patterns of language. *pp. 40-2
 Listening to stories develops an acquaintance with literature of the past and present. *pp. 53-54
 Listening to stories develops knowledge of the structure of stories. *p. 54
 Listening develops skill in identifying main ideas and sequence of events, and in understanding simple cause-and-effect relations. *pp. 48-50
 Language is a code for expressing ideas. *p. 71
 Word order conveys meaning. *p. 72
 Ideas can be expressed through speaking. *p. 64
 The art of clear, pleasant, audible speech is developed gradually. *p. 66
 Personal narratives follow a chronological order or a simple cause-effect relationship. *pp. 66-68
 Informal modes of communication (e.g., conversation, discussion, creative dramatics) can lead to a sharing of ideas and thoughts. *p. 66
 Questions generally require appropriate responses using full or part sentences. *p. 18
 Social amenities (such as "please" and "thank you") are important.

READING AND LITERATURE

PLEASURE AND INFORMATION

Literature gives pleasure. *p. 30
 Literature improves self-understanding. *p. 52
 Literature aids in understanding the behavior and values of others. *p. 52
 Illustrations aid in understanding the literature. *p. 337

*Handbook for Language Arts: Pre-K, Kindergarten, Grades One and Two (Curriculum Bulletin, 1965-66 Series, No. 8)

** Sequential Levels of Reading Skills: Pre-Kindergarten--Grade 12 (Curriculum Bulletin, 1967-68 Series, No. 4)

Page references provide amplification or identify the source of the particular item and show related materials.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Stories

A story has a set structure with a beginning, a middle and an end. *p. 52
Real-life characters are different from "make-believe" characters. *p. 52
Stories are varied in type and include the following: folktales, Bible stories, animal stories, nature stories, and stories about people, places and things. *pp.378-79
Stories have different types of settings, varying in both location and time. *p. 52

WRITING

CREATIVE AND FUNCTIONAL

Pupil-dictated stories or group stories express feelings and describe experiences. *p.70
Drawings and paintings express reactions to literature. *p. 70
Drawings and experiences are a base for learning oral and written phrases and sentences. *p. 70

WRITING CONVENTIONS

Handwriting

Practice in handling tools and materials develops dexterity and control. *p. 70
Writing proceeds from left to right. *p. 70
Drawings and possessions are identified by writing one's name in manuscript form. *p. 70

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

LISTENING AND SPEAKING

Meaning is obtained through listening. *p. 77
 Having a reason for listening aids in comprehension. *p. 78
 Listening to simple directions develops a sense of order. *p. 90
 Listening to stories develops skill in identifying main ideas and details and sequential order, and in recognizing implied ideas. *p. 86.
 Teachers' names and classmates' names are appropriate forms of address. *p. 126
 Conversation is the spontaneous informal sharing of thoughts with the teacher and other pupils..*p. 126
 Telling favorite or original stories or incidents provides opportunities for sharing ideas orally. *p. 128
 Formal modes of communication (announcements, prepared statements, individual and committee reports) can lead to the sharing of thoughts and ideas.*p. 127
 Ideas may be expressed in different sentence patterns. *p. 153
 Intonation pattern is a clue to meaning; variations in voice show feeling and emotion. *p. 80
 Asking questions is a way of communicating a need. *p. 126
 Creative dramatics and puppetry stretch the imagination and help to interpret experiences. *p. 129
 Oral reading by teacher and pupils demonstrates how phrasing, stress, pauses, and intonation affect meaning. *pp. 117-118
 Choral speaking contributes to effective interpretation of poetry and the enjoyment of language. *p. 212
 Voice production and enunciation require awareness and practice. *p. 80

READING AND LITERATURE

PLEASURE AND INFORMATION

Literature is language at its best. *p. 91
 Literature evokes many different emotional responses -- humor, grief, excitement, wonder, anger. *p. 92
 Libraries are the depositories of many different kinds of information and literature to be found in books and other media. *p. 94

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Page references provide amplification or identify the source of the particular item and show related materials.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Stories

A plot unfolds through a series of episodes leading to a logical conclusion. *p. 380

Characters behave in ways which are believable. *p. 381

Biography

Stories are written about the lives of real people. *p. 380

Poetry

The enjoyment of poetry is extended through reading aloud and listening to others recite. *p. 372

Exposition

Factual materials give useful knowledge about the world.

PROCESSES

Following skills generally applicable to content areas, as well as to literature

Comprehension

Literal

Details in a series of connected sentences may tell about the characters, setting, time, place or plot. **p. 24

Details relevant to the main idea of a selection can be found in illustrations, titles, and captions. **p. 6

The main idea of a selection may be expressed in one or more statements. **p. 6

Sequence is the chronological order of events in narratives**p.28

Inferential

An idea which is not directly stated must often be inferred**p.6

Critical

Some stories or poems may be more enjoyable than others to individual pupils.

Stories may be real or make believe. **p. 6

Alphabet Knowledge

Each letter of the alphabet, both upper and lower case, has a name. **p. 8

Auditory Discrimination

Words have distinguishable sounds. **p. 5

Visual Discrimination

Words have distinguishable gross and fine differences. **p. 4

CONTENT AND AREA

SKILLS AND KNOWLEDGE

Phonic Analysis

(For more detailed information on the various phonemes see the tables appended to this bulletin.)
For each single consonant there is a sound-symbol relationship. Single vowel letters have short (unglided) and long (glided) sounds (phonemes).
Some consonant letters may be combined with other consonant letters to form a consonant blend.
Some words have similar combinations of letters and similar sounds (word families).
New words can be formed by substituting new phonic elements for known elements.

Word Meaning

Vocabulary Development

A limited number of words may be recognized by their shape (configuration) as sight words. **p. 8
Words which do not convey meaning (function words) can be recognized on sight, e.g., the, but, for. **p. 8
Words may have synonyms or antonyms. **p. 8

Contextual Clues

Word meaning may be obtained from the sense of the sentence and/or the surrounding sentences. **p. 22

Structural Analysis

A root word (free morpheme) is the base to which other words or word parts may be added. **p. 18
Words may have plural endings. **p. 16
Words may have inflected endings (s, ed, ing). **p.16
Compound words are formed by combining two root words each of which contributes to the meaning of the new word.
**p. 16

WRITING

EXPRESSIONAL AND FUNCTIONAL

Writing may record or express thoughts and needs. *p.131
Anecdotes and incidents based on individual and class experiences are the bases for written expression. *p.133

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

EXPRESSIONAL AND FUNCTIONAL

Ideas may be expressed in different sentence patterns. *p. 153
Practice in composing can be the result of cooperative and/or individual dictation. *p. 133

WRITING CONVENTIONS

Taught as needed in
actual writing, NOT
as isolated skills

Sentence Sense

Word order may establish meaning. *p. 153

Punctuation

Every sentence begins with a capital letter and has a final punctuation mark. *p. 136

Spelling

Spelling Words List C comprises words most frequently used in student writing for that grade; new words are added from reading, content areas, and experiences. *p. 176
The list is further supplemented by each student's individual bank of spelling words based on reading and writing needs.

Usage

Variations in usage patterns are acknowledged. *p. 155

Developing communication
is stressed, rather than
correct usage.

Handwriting

Manuscript writing looks very much like print. *p. 160-175
Manuscript letters, composed of upper and lower case, require only two basic strokes; a circle or parts of a circle and straight lines. *p. 160

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

LISTENING AND SPEAKING

A variety of listening activities broadens the speaker's oral vocabulary. *p. 272
 Listening develops skill in selecting main idea, comparing and contrasting details, recognizing sequential order and cause and effect relations. *pp. 189-194
 Vocabulary growth enhances the ability to express ideas clearly and effectively. *p. 269
 The language deemed appropriate at school may be different from the language of home and community. *p. 275
 Discussion is the method by which ideas are expressed freely and attention is given to other points of view. *p. 232
 Formal modes of communication (announcements, invitations, prepared statements, performed drama, individual and committee reports) can lead to the sharing of thoughts and ideas. *p. 236
 Comparison and examples are used for clarification. *p. 258
 Oral reading requires understanding, phrasing, stress, clear enunciation, and dramatic quality. *p. 222

READING AND LITERATURE

PLEASURE AND INFORMATION

Literature is read to broaden horizons and to gain insight into basic human values. *pp. 195-197
 Literature develops critical thinking and imagination for deeper interpretation.
 Literature leads to greater knowledge of oneself.
 Literature leads to an understanding of other cultures.
 Literature read aloud increases pleasure and helps to interpret textual ideas. *pp. 222-223
 Literature is the work of individual authors and illustrators. *p. 196

Stories

Folk Tales

Each separate culture has its lore of tales transmitted over a long period of time. *p. 378

*Handbook for Language Arts: Pre-K, Kindergarten, Grades One and Two (Curriculum Bulletin, 1965-66 Series, No. 8)
 **Sequential Levels of Reading Skills: Pre-Kindergarten--Grade 12 (Curriculum Bulletin, 1967-68 Series, No. 4)

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Fairy Tales

Fairy tales are folk tales that describe beings with magical powers: fairies, giants, trolls. *p. 378

Animal Stories

Animal stories frequently employ animals who have human characteristics and often show us how to behave. *p. 379

Biography

Biographies relate the lives of real people. *p. 380

Poetry

Poems use words creatively and have a singing quality. *p. 372
Poems offer vivid descriptions of nature and human feelings.

Exposition

Factual materials give useful knowledge about the world.

PROCESSES

Following skills generally
applicable to content areas,
as well as to literature

Comprehension

Literal

Details may express similarities and differences. **p.27
Titles generally relate to the main idea or subject of a selection. **p.24

The sequence of events of a reading selection may follow a logical order. **p. 28

Cause and effect relation may be clearly stated. **p. 6

The main idea of a selection may appear in various positions in a selection. **p. 24

Inferential

The main idea of a selection may be inferred from the cumulative details of that selection. **p. 30

A series of events may be predicted by reviewing sequence and cause-effect relations. **p. 6

Conclusions concerning actions, characters, outcomes, themes, and plot development may be drawn from logical inferences. **p.6

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Critical

Selections may express authors' opinions or statement of fact.
**p. 34

Word Meaning

Vocabulary Development

Content area materials are source for expanding sight vocabulary. **p.8
Homonyms are words that have the same sound but are spelled differently and have different meanings.

Contextual Clues

Words may have multiple meanings. **p. 22
Content area words are added to vocabulary study. **p. 9

Structural Analysis

An apostrophe may be used to show possession. **p. 16
A contraction is a short way of writing two words. **p. 18
An apostrophe is used to show the omission of one or more letters. **p. 16
Some inflectional endings (s, ed) may vary in sound. **p. 16

Alphabet Knowledge

The letters of the alphabet are arranged in sequence.

Phonic Analysis

(For more detailed information on the various phonemes see the tables appended to this bulletin.)
For each single consonant letter there is a corresponding phoneme (sound) relationship in the initial and final position.
Some consonant letters are combined to form a single sound referred to as a consonant digraph.
The consonant letters r, w, and l affect the sound of immediately precedent vowels.
The consonant letters c and g have both a hard and soft sound.
The letter y and the endings ed and d have more than one sound.
Some consonant letters and consonant blends have variant sounds (voiced and unvoiced.)
Some consonant letter combinations have silent letters.
Some vowel letters are placed together to represent a single sound called a digraph.
Some vowel letters are placed together to blend their sounds into a new sound called a diphthong.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

WRITING

There are two main types of writing: expressional and functional.

EXPRESSIONAL AND FUNCTIONAL

Expressional writing conveys one's thoughts, ideas, and feelings. *p. 240
Functional writing includes factual writing: simple letters, reports, messages. *pp. 263-6
Writing letters is a method of sending a personal communication to others. *p. 263

WRITING CONVENTIONS

Taught as needed in actual writing, NOT as isolated skills

Sentence Sense

A sentence is a group of words belonging together. *pp. 273-5
Some sentences make statements; others ask questions. *p. 273

Usage

The past tense of regular verbs ends in ed, but many common verbs (see, go, buy, do, take) have irregular endings. *p. 276
Sentences begin with capital letters and end with periods or question marks. *pp. 242-246
Exclamations end with exclamation points.
The pause in speaking corresponds to punctuation marks.*p.273

Spelling

Spelling Words List C comprises words most frequently used in student writing for that grade; new words are added from reading, content areas, and experiences. *pp.289-290
The list is further supplemented by each student's individual bank of spelling words based on reading and writing needs.

Handwriting

Manuscript writing becomes more precise and smaller in size. *p. 287

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

LISTENING AND SPEAKING

Listening to stories develops skill in identifying main ideas and details, sequential order, understanding cause and effect relations, and drawing conclusions and predicting outcomes. *p. 20-23
Hearing may be passive and involuntary; listening is a voluntary activity. *p. 23
Language is spoken on two levels of usage -- formal and informal. Each is appropriate to a given situation. *pp. 138-139
An interview with another person is a way of obtaining information. *p. 97
Oral reading with expression enhances enjoyment and comprehension. *pp. 79-80
Choral speaking contributes toward effective interpretation of poetry and the enjoyment of language. *p. 258
Original stories are based on experiences or imagination. *p. 103
A report is tied closely to a center of individual or group interest or curriculum area. *p. 99

READING AND LITERATURE

PLEASURE AND INFORMATION

Literature exists in print and other media. *p. 39
Literature exists in varying lengths and is often read in segments. *pp. 39-41
Literature is created in different genres, each having identifying characteristics, e.g., short story, novel, biography, drama, and poetry. *pp. 39-40
Individual authors may have written many books with similar ideas and/or locale and characters. *pp. 39-41

Stories

In addition to plot and character, stories have settings which express time-when and place-where. *p. 348

Poetry

The meaning of poetry is enhanced by an awareness of cadence, beat, and figurative language. *p. 52

*Handbook for Language Arts: Grades Three and Four
(Curriculum Bulletin, 1969-70 Series, No.6)
**Sequential Levels of Reading Skills: Pre-Kindergarten--Grade 12
(Curriculum Bulletin, 1967-68 Series, No. 4)

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Exposition

Factual materials give useful knowledge about the world.

PROCESSES

Following skills generally applicable to content areas, as well as to literature

Comprehension

Literal

Stated details in content area materials may be isolated as sub-headings in chapters or parts of chapters. **p. 27
The main idea of a selection may be directly stated in various locations within the selection. ** p.24
Clue words such as first, next, and last indicate sequential order of events. ** p.28
Clue words such as because and as signal cause and effect relations. ** p.29

Inferential

Cause and effect relations not directly stated may be determined. ** p.31
Sequential order is a factor in predicting outcomes and drawing conclusions. ** p.28

Critical

Experiential background and knowledge affect evaluation of written materials. ** p.34

Word Meaning

Vocabulary Development

Vocabulary also expands through including content area words. ** p.9

Contextual Clues

Word meaning may be found from the context in a direct statement, through a synonym or through apposition. ** p.22

Structural Analysis

A prefix comes before a root word and changes the meaning of the word. ** p.18
A suffix comes at the end of a root word and changes the meaning of the word. ** p.18
Comparatives and superlatives change the meanings of adjectives, (er, est, more, most). ** P.18

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Alphabet Knowledge

Letters of the alphabet have both a manuscript and cursive form. **p. 8

Phonic Analysis

(For detailed information on the various phonemes see the tables appended to this bulletin.)

WRITING

CREATIVE AND FUNCTIONAL

Careful observation of objects, places, people forms the basis for good writing. *p. 110
The realm of the child's private and fantasy world may become the subject for prose and poetry.
Factual writing is necessary to provide records. *p. 105
Logical development of ideas enables one to think and write clearly. *p.104
Good writing requires revision. *P. 299

WRITING CONVENTIONS

Taught as needed in actual writing, NOT as isolated skills

Sentence Sense

A simple sentence is a group of words belonging together and conveying meaning. *p. 135

Usage

The subject of a sentence agrees with the predicate. *p. 140

Punctuation

Basic marks of punctuation: the comma, period, question mark, and exclamation point, bring more clarity to the written word. *pp. 134-135

Spelling

Spelling Words List C comprises words most frequently used in student writing for that grade; new words are added from reading, content areas, and experiences.*p.162

The list is further supplemented by each student's individual bank of spelling words based on reading and writing needs.

Words may be spelled according to a common structural element.

Regular plurals are formed by adding s. *p. 334

Regularly inflected verbs add s, ing, and ed. *p. 336

Words ending in silent e drop the e before adding ed and ing.

An apostrophe shows the omission of a letter or letters in a contraction. *p. 335

Handwriting

Letters of the alphabet have both upper and lower case in manuscript and cursive forms. *p. 155

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

LISTENING AND SPEAKING

Listening to various forms of communications reinforces comprehension.
 Role-playing serves a variety of functions: understanding language and situations, expressing feelings, and illustrating ideas. *p. 264
 Telephone conversation has specific conventions of answering: identification, clear message-giving, and brevity.*251
 Reporting involves the use of an inviting opening sentence, vivid details and examples, organization, and clear delivery, and may be made by individuals or groups.*254
 Memorization and recitation of poetry stimulate enjoyment and sensitivity to language and its patterns. *p.210-221

READING AND LITERATURE

PLEASURE AND INFORMATION

Novels

Well-developed characterization depends on the degree to which characters are true to life. *p. 348
 Historical fiction deals with historical events and real or fictional characters. *p.345

Biography

Biographies may provide insights into the historical period.*347

Poetry

In poetry the poet varies the sequence for emphasis. *p. 350
 Poetry makes wide use of comparisons (metaphors and similes)*p.350
 Poetry uses repetition of sounds (assonance, alliteration, rhyme). *p. 350
 Poetry employs words where the meaning is suggested by the sound (onomatopoeia). *p. 350
 Free verse is poetry without regular rhyme or meter. *p. 351
 A popular form of unrhymed poetry is Japanese Haiku, a poem of seventeen syllables divided into three lines of five, seven, and five syllables. *p.294

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Page references provide amplification or identify the source of the particular item and show related materials.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Exposition

Factual materials give useful knowledge about the world.

PROCESSES

Following skills generally
applicable to content areas
as well as to literature
Comprehension

Literal

Details may be used to support a point. **p. 26

Inferential

Details may be inferred from the context. *p. 31
Characters can be analyzed by their actions. **p. 30
Outcomes may be predicted based upon stated fact. **p. 30

Critical

Personal experiences may be related to a narrative or
expository selection. **p. 34
Fact and opinion may be distinguished based upon clue words
such as: in my opinion and I believe that. **p. 34

Word Meaning

Vocabulary Development

Vocabulary also expands through including content area words*9
Words evoke emotional and sensory responses. **p. 9

Contextual Clues

Word meaning may be found contextually through comparison
and/or contrast. **p. 22

Structural Analysis

Words of more than one syllable can be divided between the
syllables. **p. 20

Phonic Analysis

Should have been com-
pleted by this grade
except for individual
students who need
reinforcement

(For detailed information on the various phonemes see the
tables appended to this bulletin.)

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

WRITING

CREATIVE AND FUNCTIONAL

A paragraph is a set of sentences of related ideas. In expository paragraphs there are generally a main idea (implied or stated) and supporting ideas. *p.272
 An opening sentence is important in introducing the subject and arousing the reader's interest. *p. 273
 Writing stories or reporting an event makes use of chronological order. *p. 274
 Factual writing involves organizing and writing records, signs, labels, forms, directions, notes, reports. *pp. 269-70,80
 First hand and vicarious experiences provide the material for journals, letters, and anecdotes. *pp. 272-3
 Tales of fantasy, myths, fables or dreams may be the models for imaginative writing.
 Revision is a means of improving one's original writing.
 *pp. 299-301

WRITING CONVENTIONS

Taught as needed in actual writing, NOT as isolated skills

Sentence Sense

Simple sentences may be expanded to form compound sentences joined with and or but. *p. 306

Punctuation

A comma is usually needed before and or but when used to join compound sentences. *p. 306

Usage

To improve style, pronouns may be substituted for nouns. *p.341
 A pronoun agrees with its antecedent in number and gender.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Spelling

Spelling Words List C comprises words most frequently used in student writing for that grade; new words are added from reading, content areas, and experiences. *p.368
The list is further supplemented by each student's individual bank of spelling words based on reading and writing needs.
Some plurals are formed by adding s, es, changing y to i and adding es. *p. 327
Some word roots change when plurals are formed (irregular plurals such as foot, feet).
A word ending in a single consonant following a single vowel doubles the consonant for an inflectional ending (run, running). *p. 229
A word of more than one syllable can be divided between its syllables. *p. 324
Common abbreviations exist for days, months, titles, and measurements.

Handwriting

Cursive writing is the conventional form of script in which letters are joined and words separated. *pp. 316-20

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

LISTENING AND SPEAKING

Listening is a means of appreciating the mood of a selection***12
 Listening critically is a means of evaluating content of
 written materials. ***p. 11
 Listening to various forms of written communications rein-
 forces comprehension. ***p. 155
 Effective discussion has purpose, direction, and opportunities
 for participation by all. ***p. 17
 Volume, pitch, rate, and quality of voice are appropriately
 varied to occasion. ***p. 7
 There are standards for pronunciation and articulation suit-
 able for different occasions. ***p. 8
 Choral speaking contributes toward effective interpretation
 of poetry and the enjoyment of language.

READING AND LITERATURE

PLEASURE AND INFORMATION

Common emotions and aspirations unite all people. *p. 224
 Cultural differences exist among people; these should be under-
 stood and respected. *p. 155

Novel, Short Story, Myths

The plot may develop in a straightforward chronological
 manner. *p. 241
 The hero and the villain of the piece of literature are iden-
 tified by their characteristics. *p. 241
 The setting (time and place) of the story is important in its
 relation to the story. *p. 241
 Characters' traits and actions may be evaluated in terms of
 ethical values relating to the students' own lives.*p.222
 Characters' strengths and weaknesses may cause them to
 overcome or succumb to obstacles.
 The motivation for characters' behavior must be sought in
 terms of environment, personality, and society. *p. 223
 The myths of all countries relate their histories, customs,
 and beliefs. *p. 309

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Drama

A play contains dialogue to interpret character and develop the components of plot. *p. 310

Biography

Biographies and autobiographies give insights into the subjects' lives and personalities, and may serve as role models. *p. 261

Poetry

Poetry employs words with musical quality. *p. 242
Onomatopoeia (sound of a word suggesting meaning) and alliteration (repetition of initial sounds) enhance the meaning and musical qualities of poetry. *p. 252

Newspapers, Journals, Speeches

Personal accounts supply authentic flavor.

PROCESSES

Following skill: generally applicable to content areas, as well as to literature

Comprehension

Literal

Knowledge of literal meaning is applied to increasingly more difficult content and concepts. **p.25

Inferential

The literal meaning of a sentence can be expanded to include an extended meaning. **p. 31
Related ideas may be used to make generalizations. **p. 31
Outcomes may be predicted based upon facts not directly stated. **p. 30

Critical

Recognition of an author's purpose aids comprehension and evaluation. **p. 35

(Generally, these skills are integrated with reading for pleasure and information).

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Word Meaning

Vocabulary Development

Vocabulary also expands through including content area words. **p. 9
Language is constantly growing and changing. **p. 9
Many words have a specific history that can be traced back to their origins. **p. 9
New words are invented for new discoveries, ideas, and/or situations. **p. 9

Contextual Clues

Context aids in understanding words in technical and literary material. **p. 23

Structural Analysis

Dividing words into syllables may aid in decoding unfamiliar words. **p. 21

WRITING

CREATIVE AND FUNCTIONAL

Appropriately selected words provide clarity, vividness, and precision in context. ***p. 171
Variety in the use of language makes writing more interesting. Varied sentence types provide interest and fluency. ***p. 172
The paragraph contains an orderly and unified presentation of thought. ***p. 173
The basic paragraph requires writing of a moderate length. Paragraphs may be descriptive, narrative, persuasive or expository.
Individual statements on a topic must be related to each other. ***p. 173

Forms

The personal letter form includes the date, salutation, closing, and signature. ***p. 173
The envelope shows the complete return address and full name and address (including zip code) of the recipient. ***173

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

WRITING CONVENTIONS

Taught as needed in
actual writing, NOT
as isolated skills

Sentence Sense

There are different kinds of sentences: statements, questions, commands or requests, and exclamations. ***p. 172
Simple sentences can be joined by using such coordinating linking words as and, but and or.

Usage

Comparatives and superlatives of regular adjectives are formed by adding er and est. ****p. 15
Auxiliary verbs aid in forming tenses.

Punctuation

The sentence is to be distinguished from word groups and fragments and is punctuated by an initial capital letter and a final period, question mark, or exclamation point.***17
The hyphen is used to separate parts of a word at the end of a line.
The apostrophe is used to show possession. ****p. 268

Spelling

Spelling Words List C comprises words most frequently used in student writing for that grade; new words are added from reading, content areas, and experiences. *p.215
The list is further supplemented by each student's individual bank of spelling words based on reading and writing needs.
There are certain words which have a regular spelling pattern.***205
Certain types of spelling errors persist because of reversals, omission of silent letters, mispronunciation, lack of emphasis on final sound. ****p.209

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

LISTENING AND SPEAKING

Listening to various communications reinforces comprehension. Listening critically is a means of evaluating content. ***p.23
Listening for essential points will help in focusing on directions. ***p. 44
When speaking, the intonation and rising and falling of the voice have a definite pattern. ***p. 19
Short talks before a live audience help to build poise and confidence. ***p. 25
Improvising scenes from a play gives insight into character and motivation. ***p. 51
Performing a role in a play demands skills such as pantomime, body action, and appropriate voice modulation and effect. Dialect and standard structures are compared and understood. ***p. 28

READING AND LITERATURE

PLEASURE AND INFORMATION

Short Story, Novel, Drama

The elements of plot can be identified. *p. 241
Characters in books may reflect the effects of their good or bad environment. *p. 222
Characters in books help us to know ourselves and others more accurately, develop a set of personal values, make judgments independently, and take action accordingly. *p.250

Poetry

The emotional impact of poetry is heightened by the type of rhythm employed. *p. 254
The rhyme scheme follows a regular or irregular pattern. *p.257
The lines of a poem may follow a regular stanza form such as the couplet or quatrain. *p. 258
Poetry is made more vivid through the frequent use of simile and metaphor. *p. 242
The choice of words and the sounds of the lines convey mood.*259

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Essay

The personal essay may express the author's sense of humor, way of thinking, or preferences. *p. 244

Newspapers, Journals, Speeches

Good reporting has authenticity and objectivity.

PROCESSES

Following skills generally applicable to content areas, as well as to literature

Comprehension

Literal

Knowledge of literal meaning is applied to more difficult content and concepts. **p. 25

Inferential

Sequential order may be inferred using logical reasoning and by placing details in their order of occurrence. **p. 29
Conclusions are drawn as a result of inductive and/or deductive reasoning applied to a paragraph or selection. **p.30
Recognition of cause and effect relationships serves as an aid in drawing conclusions and predicting outcomes. **p.31

Critical

Recognition of an author's point of view aids in understanding a selection. ** p.35
Materials can be evaluated for validity and accuracy. **p.35
(Generally these skills are integrated with reading for pleasure and information).

Word Meaning

Vocabulary Development

Many English words are derivatives of other languages. ***p.174
**p. 9

Contextual Clues

Punctuation may provide clues to word meaning, e.g., dash, parentheses, commas. **p. 23
Context clues aid in understanding words in technical and literary material. ** p. 23

**Sequential Levels of Reading Skills: Pre-Kinergarten--Grade 12
(Curriculum Bulletin, 1967-68 Series, No. 4)

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CONTENT AREA AND TOPICSKILLS AND KNOWLEDGE

Structural Analysis

Identifying parts of a word can aid in defining the word**p. 21

WRITING

CREATIVE AND FUNCTIONAL

Writing may be enriched by searching for vivid and precise words, using synonyms, antonyms, descriptive words and action words. ***p. 174

Words may have interesting historical backgrounds which give them special connotative value. ***p. 174

A narrative paragraph creates a sense of unity by telling of a single significant piece of action. ***p. 176

The descriptive paragraph achieves sensory effects through effective and selective words. ***p. 176

The simple expository paragraph of the "how-to-do" or "how to make" variety uses sequential order. ***p. 176

Letters to friends and family are an excellent way to communicate personal feelings and experience. ***p. 177

WRITING CONVENTIONS

Taught as needed in
actual writing, NOT
as isolated skills

Sentence Sense

Sentence kernels (basic sentences - simple subject and predicate) can be joined by using such subordinating linking words as when, as, since, although, and because.

There are basic sentence patterns, among them:

S-V (Subject - Verb)

S-V-O (Subject - Verb - Object) ****p. 18

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Usage

Don't and doesn't agree with their subjects.
The double negative construction, in which two negative words are used when one is sufficient, is considered non-standard form.

Punctuation

Use capitals for proper names, initials and abbreviations, and first word in salutation and closing of a letter.
A comma is used before and, but, or, nor, for, yet when they join simple sentences.
Capital letters are used for titles with a person's name, key words in titles of books, films, stories, poems.
Commas are used for words in a series.

Spelling

Spelling Words List C comprises words most frequently used in student writing for that grade; new words are added from reading, content areas, and experiences. *p.206
The list is further supplemented by each student's individual bank of spelling words based on reading and writing needs.

Certain spelling errors persist because of confusion of homonyms, omission of silent letters, failure to double consonants, incorrect vowels, addition of letters.***209

Proofreading

Proofreading is a complex skill that involves the recognition of errors and the ability to correct them.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

LISTENING AND SPEAKING

Listening to various forms of communication reinforces comprehension.
 Good voice production includes respiration, phonation, resonance, and articulation. ***p. 31
 Accents may affect the pronunciation and meaning of words.
 Parliamentary procedure is an effective method of conducting a meeting involving set rules of order, voting, elections, and related activities and procedures. ***p. 40

LITERATURE AND READING

PLEASURE AND INFORMATION

The understanding of literature is a help in understanding oneself. *pp.224-5
 Personal values are clarified and strengthened by the wide reading of literature. *pp. 224-5
 Responsibility to the family unit is developed and reinforced by the study of literature. *p. 227
 Pathos, irony, and wit are elements which give emotional effect. *p.248
 Figurative language is used to highlight literal meanings. *p.254
 Propaganda can be recognized. *p. 100

Mythology

Mythological deities, folk heroes, and characters in stories and fables possess qualities which mirror human attributes, virtues, and frailties. *p. 309

Short Story, Novel

Stories and novels may be told through the eyes of the author (third person) or by a character in the story (first person). *p. 94
 The subplot is a method of enriching and supplying contrast to the main plot. *pp. 245-6
 The use of flashback is a method of plot development. *p. 245

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Poetry

Different speech sounds such as sibilants and plosives contribute to the overall effect of a poem. *p. 242
The rhyme may be organized in regular patterns: a-a, b-b, c-c, etc.; ab-ab; and the like. *pp. 254-7
Personification is a figure of speech in which human attributes are given to inanimate things or animals.

Biography

The author of a biography may present a personal or biased point of view about the subject. *pp.224-228

Essay, Articles

The story essay is a form often used to present a moral. *p.244
Informed opinion is the personal opinion of an expert in the field.
Objective reporting is factually oriented, complete, and avoids slanted words, propaganda, and a personal point of view.

PROCESSES

All the basic processes and skills of reading have been covered by the end of grade 6 for students on grade level. For students in grades 7, 8, and 9, advanced reading skills are best integrated into the teaching of literature and content area materials. This section is now referred to as Literature and Reading. For students reading below grade level, remediation should be planned for those skills in which students are deficient.

WRITING

EXPRESSIONAL AND FUNCTIONAL

Words have an emotive force. ***p. 178
Modifiers are placed as close as possible to the words they modify, to enhance clarity.
New words -- some slang, some specially created -- keep language current and colorful.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Forms

In an expository paragraph the most important points come first, followed by the less important in rank order or vice versa. ***p. 179

Persuasive paragraphs may use some or all of the following: fact, opinion, authority, evidence.

The business letter form may be block or indented, containing the sender's address, the inside address, date, proper salutation, and closing. ***p. 180

Business letters should be clear, concise, and courteous. Persuasive letters should use the above devices and should avoid name-calling and abusive language.

WRITING CONVENTIONS

Taught as needed in actual writing, NOT as isolated skills

Sentence Sense

Effective sentences can include phrases and clauses. ***p. 178

There are basic sentence patterns, among them: S-V-IO-O

(Subject - Verb - Indirect Object - Object).

Subject and predicate agree in number and person.

Punctuation

Indentation marks the start of a new paragraph.

Quotation marks are used to indicate direct speech.

Usage

Parts of speech are identified by their position and form:

noun, verb, adjective, adverb, pronoun, determiner. ****p.33

Adverbs ending in ly and adjectives of more than two syllables are preceded by more and most in the comparative and superlative. ****p. 39

Spelling

Spelling Words List C comprises words most frequently used in student writing for that grade; new words are added from reading, content areas, and experiences.

The list is further supplemented by each student's individual bank of spelling words based on reading and writing needs.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

LISTENING AND SPEAKING

Listening to various forms of communication reinforces comprehension.
 Informal and formal debating provides a forum for the exchange of ideas and opinions. ***p. 52
 Regional variations may alter the pronunciation and meanings of words.***p. 129
 Meaning can change the pronunciation of some words, e.g., ob'-ject, ob - ject'; rec' - ord, re - cord'.

LITERATURE AND READING

PLEASURE AND INFORMATION

Personal attitudes and values are clarified through the study of literature of enduring value. *p.88
 The process of maturing is aided by understanding characters and situations in literature. *pp.226-7
 Responsibility to other members of society is developed through a careful reading of good literature. *p.156
 An author often presents a thesis or statement which is called a theme. *pp. 56-7
 Meaning may be inferred when a writer uses ellipsis (the omission of a word or words from a sentence).
 The omission of information is a technique which may be used to create a biased report. ***p. 92

Short Story, Novel, Drama

Variations in time sequence in plot development (such as beginning in the middle of the action) have an impact.*p.245
 Foreshadowing is a technique to give psychological and artistic emphasis and to build suspense. *p. 246
 Characters are revealed through the use of first-person narrative. *p. 249

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Poetry

The associative values of words enrich poetry. *p. 242
Hyperbole (exaggeration) is a figure of speech which heightens effects in poetry. *p.255
A symbol (generally a material object used to represent something often immaterial) is frequently used for effect in poetry. *p. 260

Autobiography

The authors of autobiographies have both advantages and disadvantages in approaching their own lives. *p. 261

Essay

The character sketch is a form of essay frequently found in books and in journals. *p. 265

Newspapers

A simple news story is structured according to the Five W's. ***p. 48

PROCESSES

All the basic skills of reading have been covered by the end of grade 6 for students on grade level. For students in grades 7, 8 and 9, advanced reading skills are best integrated into the teaching of literature and content area materials. For students reading below grade level, remediation should be planned for those skills in which students are deficient.

WRITING

EXPRESSIONAL AND FUNCTIONAL

Brevity and succinctness are vital to the clear statement of ideas. ***p. 181
Words and names may convey positive or disparaging meanings. Variety in sentence beginnings through the use of infinitives and phrases provides smoothness and interest.
Expository paragraphs may be developed through logical use of detail and example. ***p. 182
Longer compositions may be composed of paragraphs stressing introduction, body, and conclusion. ***p. 183

COMMUNICATION ARTS GRADE 8

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

EXPRESSIONAL AND FUNCTIONAL

The appropriate tone for different types of business letters may be courteous, firm, insistent, and always succinct. ***p. 183
Fan letters should reflect honesty of reaction and good taste.
*** p. 183

WRITING CONVENTIONS

Taught as needed in actual writing, NOT as isolated skills

Sentence Sense

Clauses beginning with subordinating words (such as if, where, while) are used to present ideas subordinate to the main idea. ****p. 20

Recognizing and using parallel structure within the sentence and the paragraph creates more cohesive writing. ****p. 36

The basic sentence patterns may be expanded by modification and coordination. ****p. 14

There are basic sentence patterns, among them: S-LV-ADV (Subject - Linking Verb - Adverb).

Punctuation

Introductory phrases and subordinate clauses are followed by commas. Direct quotes can be broken and continued after the name of the speaker has been inserted.

Usage

A regular verb forms the past participle by placing an auxiliary verb before the past tense form.

Irregular verbs are formed differently.

Conjunctions, prepositions and interjections are identified by their functions.

Spelling

Spelling Words List C comprises words most frequently used in student writing for that grade; new words are added from reading, content areas, and experiences.

The list is further supplemented by each student's individual bank of spelling words based on reading and writing needs.

The addition of affixes and/or inflected endings to a root word may alter the basic spelling of the word. 113

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

LISTENING AND SPEAKING

Critical listening aids in discerning bias, propaganda, slant***
The formal speech is used to give information, report, or air^{p.70}
an opinion. (Notes may be used.) ***p. 58

LITERATURE AND READING

PLEASURE AND INFORMATION

Family and social traditions provide continuity but might be
reexamined in the light of new information. *p. 230
Although the individual is a member of society, individuals
cannot abrogate responsibilities for their own ethical
judgment and action. *p. 230
Typographical clues may serve as a clue to word meaning, e.g.,
boldface, italics, quotation marks, commas and parentheses,
setting off appositives. *pp. 84-5
The meaning of words and figures of speech may depend upon
their literary or historical heritage. *p. 84
Propaganda techniques based upon slanted writing and emotional
appeal are recognized. *p. 87

Short Story, Novel, Drama

The plot of a short story, drama and novel may follow the
pattern of: rising action, climax, falling action,
resolution, denouement. *p. 247
The plot may not necessarily develop according to regular
pattern but may shift back and forth. *p. 245
Character development may be evaluated by standards of
credibility and consistency. *p. 250
Settings may be single or multiple and shift from one place
to another. *p. 250

Poetry

Irony is the figure of speech which expresses a meaning
opposite to the intended meaning. *p. 242
A line of poetry may be divided into measures called feet
with a regular pattern of stressed and unstressed beats.

Biography and Essay

The biography and essay may be used to present the author's
point of view. *p. 262

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Handbook for English Language Arts: Grades 5-12

*Reading and Literature (Curriculum Bulletin, 1967-78 Series, No. 0)

***Speech and Composition (Curriculum Bulletin, 1969-70 Series, No. 21)

****Language Strand (Curriculum Bulletin, 1974-75 Series, No. 4)

Page references provide amplification or identify the source of the particular item and show related materials.

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CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Newspaper

An editorial expresses the opinion of the editor.
The review is an informed opinion on the arts.

PROCESSES

All the basic skills of reading have been covered by the students on grade level. For students reading below grade level, remediation should be planned.

WRITING

EXPRESSIONAL AND FUNCTIONAL

Science, the arts, and industry have contributed many specialized words to the language. ****p. 176

Slang consists primarily of figurative language which may have transient popularity or become part of the language.***93

Details in the descriptive paragraph may be arranged according to spatial order. ***p. 186

Expository paragraphs may be developed through the use of comparisons and contrasts. ***p. 186

Persuasive paragraphs should have a point of view, a logical development, and employ effective language. ***p. 186

Dialogue, appropriately punctuated, lends reality to narrative writing. ***p. 187

Letters of application should contain relevant information and appropriate tone. ***p. 186

Letters of persuasion to public officials and the press should be forceful, courteous, and pertinent. ***p. 186

Journalism

The news article should contain a lead sentence with the 5 W's and paragraphs of descending order of importance.

The editorial is a statement of opinion.

The human interest story is an incident, usually of local interest, with emotional or humorous appeal.

CONTENT AREA DN TOPICSKILLS AND KNOWLEDGE

WRITING CONVENTIONS

Taught as needed in
actual writing, NOT
as isolated skills

Sentence Sense

There are basic sentence patterns, among them:

S - LV - PA

(Subject - Linking Verb - Predicate Adjective);

S - LV - PN

(Subject - Linking Verb - Predicate Nominative).

Variety in sentence beginning through the use of infinitives
and phrases provides smoothness and interest. ****p. 16-17

Punctuation

Appositives and other parenthetical elements provide
additional information and are set off by commas. ****p. 21

Usage

A verb is active when it expresses an action performed by its
subject. A verb is passive when it expresses an action
performed upon its subject.

Active verbs are generally stronger than passive verbs.

A compound subject joined by and requires a plural
verb. ****p. 38

Spelling

Spelling Words List C comprises words most frequently used in
student writing for that grade; new words are added from
reading, content areas, and experiences.

The list is further supplemented by each student's individual
bank of spelling words based on reading and writing needs.

A successful method of teaching English to non-native speakers is through the audio-lingual approach. The pupils' first contact with the language is listening. They next practice what they have heard by repetition of language patterns and a variety of oral drills. At later stages, reading and then writing are introduced. Grade level curriculum specifies reading and writing objectives to be mastered by native speakers. Teachers of English as a second language (ESL) should know the objectives to insure that non-native speakers will also achieve these competencies.

The content of the curriculum at any level will depend on several factors: the age of the pupils, the duration of the ESL program, and the second-language ability of the students. There are usually three levels of instruction: beginning, intermediate, and advanced. Levels of instruction are necessary to insure that the language objectives are introduced in a systematic fashion. The reading, writing, and auditory objectives are also integrated into these divided levels and are arranged in a hierarchy of increasing difficulty. Teachers should review the scope and sequence in language arts K-9 in this bulletin to determine the specific skills and knowledges necessary for ESL students at various grade levels. Vocabulary will vary according to the sophistication and grade level of the ESL students. It is important to note that some students in grade level 6 may be beginning ESL students while others are intermediate or advanced.

A variety of topics must be mastered by all students. They include greetings, weather, emergency situations, etc. For example, students in all grade levels must master the patterns. My name is _____. I live at _____.

The following ESL scope and sequence will outline the topics, skills, and knowledge that should be taught. For specific examples of lesson plans and methodology, consult the Board of Education bulletins Handbook for Language Arts Pre-K-2 and Teaching English as a Second Language in the Middle Grades. Lessons in science, math, social studies and music may be found in the experimental bulletin Teaching English as a Second Language in The Elementary Schools.

ENGLISH AS A SECOND LANGUAGE

BEGINNING ESL

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

STRUCTURAL ANALYSIS

Articles

An and the, as used preceding initial sounds, are introduced.
An and a, as used preceding consonant and vowel sounds, are introduced.

Nouns

Nouns can be singular or plural, e.g., bank/banks, boy/boys, glass/glasses.
Some nouns are irregular, e.g., man/men; child/children.

Verbs

Am, is, are and regular verbs are used in the present tense.
Was and were and regular ed verbs in all terminal sound categories, e.g., walked, played, wanted, are past tense verbs.
To be going to _____ is a future tense pattern.

Subject Pronouns

I, you, he, she, etc. replace common and proper nouns in subject positions.

Demonstratives

This/these and that/those are used in declarative and interrogative sentences.

Object Pronouns

Me, him, her, it, them, us, you replace common and proper nouns in object positions.

Possessive Adjectives

My, your, his, her, its, our, their replace common and proper possessive singular and plural nouns in describing ownership.

Possessive Pronouns

Mine, yours, his, hers, its, our, theirs replace common and proper possessive nouns.

Questions

Do and does are used to ask and answer yes/no questions.
Who, what, when, where, and why are used in information questions with do, does, and to be.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

STRUCTURAL ANALYSIS (continued)

The Negative

The negative is formed with the auxiliaries do and does and the verb to be.

READING

Alphabet

The same letters may have different sounds.

The Sentence

Sentences have a "doer" and a "receiver."
Sentences have meaning.

Paragraph

Paragraphs have main ideas and supporting ideas.

Punctuation

Certain marks of punctuation are essential to enhance better reading comprehension.
The period (.)
The comma (,)
The question mark (?)

Vocabulary

Some words are similar in two languages.
Student level and experience will determine the vocabulary taught.

AURAL-ORAL

*pp. 23-24

Directions

Teacher directions to students are important.

Illustrations

Identification of a picture from an oral word, oral action, phrase, oral descriptive sentence, brief oral paragraph demonstrates listening comprehension.

Consonants

Identification of consonants and consonant blends in initial, medial and terminal positions from oral words demonstrates that students hear these sounds.

Vowels

Identification of vowels in initial, medial and terminal positions from oral words demonstrates that students hear these sounds.

BEGINNING ESL

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

AURAL-ORAL (continued)

Sequencing

Listing the sequence of events from an oral paragraph demonstrates that there is logical sequence of action and events.

Sentence Completion

Identification of a phrase which best completes an unfinished oral statement demonstrates knowledge of syntax.

WRITING

In grades 1-2 manuscript writing (printing) of the alphabet, familiar names, basic vocabulary, and in grades 3-6, cursive writing of alphabet, one-word vocabulary, phrases and sentences are motor skills.

Single words, sentences controlled orally and read with comprehension with attention to left-to-right movement, punctuation, spacing, and letter forms are copying skills.

Word, phrase, simple sentence writing of material controlled in oral production and the writing of dictated material within a student's auditory comprehension ability are dictation skills.

Periods or question marks are terminal punctuation. A sentence begins with a capital letter.

SPELLING

There is no definite spelling list. However, the students should be held responsible for the spelling of the words learned in class. An oral dictation of such words should be included in weekly tests. Consult specific grade spelling list.

INTERMEDIATE ESL

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

STRUCTURAL ANALYSIS

Nouns

Nouns can be count or mass. They are often used with HOW MANY and HOW MUCH, in both questions and statements. Proper, common and collective nouns are used in both questions and statements. Nouns can show possession, e.g., John's.

Verbs

Regular and irregular past-tense forms tell about past events and actions. Progressive (past and present) tenses use present participles. The modals: should, would, could, may, might, shall, will, etc., can alter the meaning of verbs.

Adjectives

Adjectives describe and compare nouns and pronouns, e.g., simple, comparative - as...as, more...than, fewer...than, superlative - est, most...

Prepositions

In, on, at, near, off, by, under, etc. commonly used in phrases.

Pronouns

Indefinite pronouns replace nouns, e.g., some; any; every; with - body and - one.

Adverbs

Some adverbs are adverbs of place, e.g., there, here, far, near. Some adverbs are adverbs of time, e.g., then, now, before, after.

Expletives

There is, there are, there was, there were are used in both statements and questions.

Negative

The negative is used in both statements and questions.

Questions

Did is used with question words, e.g., how much? how many? which and whose? Question words how, who, what, where, when, whose, and why are used with different tenses.

INTERMEDIATE ESL

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

READING

Phonics

Use the same symbols that are used in Webster's dictionary to assist students in pronunciation.

Selections

All difficult or unfamiliar points of grammar should be taught as encountered in reading selections, and the students should be expected to remember them; e.g., the difference between hanged and hung; dragged and drug, etc.

Punctuation

Certain marks of punctuation are essential in order to enhance better comprehension of reading selections.

The period (.)

The comma (,) - Example:

"The President," said the governor, "had the right to veto the bill."

The President said the governor had the right to veto the bill.

Semi-colon (;)

Quotation marks ("")

Example: The "eye" saw the airplane through the clouds.
(Eye is in quotes because it refers to radar, etc.)

Vocabulary

Development of vocabulary depends on the sophistication and experience of the students.

Comprehension
(within time limits)

Culling information from reading selections under a time pressure helps in developing speed.

INTERMEDIATE ESL

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

WRITING

Commas are used to enhance meaning.

Sentence and paragraph writing of student ideas, emotional reaction, and creativity are developed through experience charts and guided writing activities.

Guided written responses to sequential, logical questions over a single topic create a written paragraph.

Writing on a familiar topic, which is controlled orally by the teacher, assists students in generating written compositions.

AURAL-ORAL

Continue using the drilling procedures.

Sentence and Paragraph
Completion

Identification of a phrase which best completes an unfinished oral statement, oral paragraph or oral story demonstrates comprehension of the statement, paragraph or story.

ADVANCED ESL

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

STRUCTURAL ANALYSIS

Syntax

Statements and questions are patterns used with all verb tenses.

Direct statements use quotation marks.

Indirect statement with and without the use of that do not use quotations.

Gerunds (-ing subjects, such as running) may be used as nouns. (Running is fun.)

Infinitives (to + verb) may be used as nouns. (To run improves physical well being.)

Passive constructions, with and without an agent, give language variety.

Present and past perfect tenses have special uses.

Grammar

Many verbs are changed to nouns by adding suffixes; e.g., worker, institution, etc.

Reflexive pronouns refer back to the subject; e.g., "He went himself."

Some infinitives are not preceded by to; e.g., They helped find the cat.

Two-word verbs. Examples: to burn up, to use up, etc. are often idiomatic.

Adverbs can modify nouns. Examples: The prices here are very good.

Adjectives of size usually precede other descriptive adjectives.

Example: My friend has a big brown cat.

Multiple modifiers have specific order in a sentence.

Example: He is a happy, smiling, excited child.

Vocabulary

Latin and Greek cognates and useful Americanisms encountered in reading selections are an important vocabulary focus.

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READING COMPREHENSION

(within time limits)

Culling information from reading selections under a time pressure helps in developing speed.

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ADVANCED ESL

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Prefixes

Mis-, un-, sub-, re-, in-, pre-, etc.

Suffixes

ment, ness, er, or, etc.

-ful (full of), e.g., careful

The suffixes -ence and -ance change verbs to nouns meaning "an action or state resulting from the verb."

Examples: Verbs - prefer, differ, insure, disturb

Nouns - preference, difference, insurance, disturbance

The suffix -ive changes verbs to adjectives.

create - creative

express - expressive

The suffix -al changes nouns to adjectives.

profession - professional

Homophones

to, too, two; know, no; hour, our; blue, blew; would, wood;
one, won; I, eye; I'll, isle; son, sun; ate, eight;
cent, scent, sent; write, right, rite; they're, their, there;
peace, piece; see, sea; guessed, guest; birth, berth; heel,
heal; steel, steal; tail, tale; mail, male; foul, fowl

Common Abbreviations

Titles - Mr. -Mister; Mrs. -Mistress; Dr. -Doctor; Prof. -Professor

Weights and Measures: Ft. -foot, feet; in., ins. -inch, inches;

yd., yds. -yard, yards; lb., lbs. -pound, pounds; oz., ozs.

-ounce, ounces; qt., qts. -quart, quarts; gal., gals. -gallon, gallons; doz. -dozen; pt., pts. -pint, pints

Time: A.D., B.C., A.M., P.M.: wk., wks. -week, weeks;

mo., mos. -month, months; yr., yrs. -year, years;

sec. -second; min. -minute; hr., hrs. -hour, hours

Addresses: P.O. -post office; no., -number; dept. -department;

apt., apts. -apartment, apartments; Ave. -avenue;

St., -street; Blvd. -boulevard; Rd., -road; Dr. -drive

Other: e.g. -for example; i.e. -that is; etc. -et cetera, and so on; M.D. -medical doctor; Co. -company

WRITING

Formal and informal letter writing is important in everyday life (greeting, ending, other mechanics).

Conveying student's ideas, feelings in organized written form understandable to a reader is a free-writing exercise.

ADVANCED ESL

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

SPELLING

Y changes to i + (-es; -ed; -ment; -ness)

Examples: happy/happiness; copy/copies; copy/copied;
accompany/accompaniment

Doubling of final consonants:

Examples: drop/dropped; prefer/preferred

Change -f/-fe to -ves

Examples: half/halves; life/lives

Words ending in silent E, preceded by a consonant, drop the - E
before a suffix that begins with a vowel (-ed, -ing, -al,
-ance, -er):

Examples: give/giving, move/moved, moving, movable, mover

Exceptions: Words ending in -ce or -ge keep the final -e
before a or o. Examples: notice/noticeable, manage/manage-
able

Words ending in silent E preceded by a consonant (-ful, -ly,
-ment) do not drop the silent E.

Examples: taste/tasteful, love/lovely, move/movement

FOREIGN LANGUAGES (FLES) GRADES 3-4-5

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

LANGUAGE ACQUISITION
IN FRENCH, GERMAN, HEBREW,
ITALIAN, AND SPANISH

Listening

New utterances are modeled so that sounds and sound patterns can be distinguished and a linkage between sound and meaning established.

Commands, questions and answers, chain drills, dialogues, songs, and taped material are used for ear training and comprehension of language patterns.

Speaking

The sound system of a language and proper pronunciation are acquired by means of imitation and mimicry concurrently with the acquisition of language patterns.

Devices for habituation of language patterns are memorization, choral repetitions and drills.

Freer manipulation of vocabulary and structures is facilitated by modification of dialogues, role playing, and situation simulations.

Oral activities are supported by visuals, flannel board cut-outs, transparencies and puppets.

Reading

Actual reading is preceded by a reading readiness stage during which objects in the classroom, pictures, and maps are labeled. Reading begins with language patterns mastered in the pre-reading stage.

Reading progresses to new patterns.

Writing

Writing begins with the labeling of objects and pictures during the pre-reading stage.

FOREIGN LANGUAGES (FLES) GRADES 3-4-5

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Grammatical
Structure

Writing is practiced by copying language patterns previously mastered, writing from dictation and making picture dictionaries.

Model sentences show grammatical structures. Generalizations of grammatical structures are applied to new linguistic situations.

Cultural
Information

The geography of the country where the language is spoken, the customs, holidays, school life, recreations, and values of the people are topics of cultural information.

Maps, pictures, transparencies, films, records, and tapes are aids for conveying cultural information.

A corner of the classroom is set aside as an exhibit area for pictures, scrapbooks, and models.

Conversational
Themes

The school, the classroom, the family, occupations, food, and meals, going marketing, visiting the park or zoo, recreation, and sports are conversational themes.

CHILDREN'S NEEDS

PRINCIPLES OF GROWTH & DEVELOPMENT

Basic needs, the same for all children, are the drives that influence behavior. These needs include:

1. NEED TO BE VALUED

A child's self-image has top priority. A child can't be "somebody" unless the child is "somebody" to someone else. Self-image must be reflected in the eyes and actions of those the child loves and values. All children must be valued for who they are, where they come from, and what they bring with them from their culture, language, desires, and expectations.

2. NEED TO DO

Children learn by using all their senses to explore, discover, and form judgments about the things in their world.

3. NEED TO SHARE WITH PEOPLE THEY TRUST AND BE TRUSTED TO SHARE

Children need adults who care, who can guide the children's discovery into mutually respected action, who inspire and develop competence and confidence.

4. NEED TO BE GIVEN A CHANCE TO GROW AT HIS OR HER RATE IN HIS OR HER OWN WAY

Growth for children has many dimensions - social, emotional, physical, and intellectual. Growth is uneven and highly individual. All children do not reach the same level of growth at the same age, nor does a child grow in the same way in all areas.

Basic principles that enable persons to guide children with a degree of assurance include:

1. DIFFERENTIATION

Development proceeds from simple to complex. In both structure and activity, development is gradual in the direction of complexity and variety. Differentiated structures and functions become organized in new and more inclusive patterns.

2. DISCONTINUITY OF GROWTH RATE

Development is never uniform or all at the same time. Various parts and systems grow at various rates at a different time. Growth shows characteristic spurts or peaks and then slows down to periods of relative latency.

3. INTERRELATEDNESS OF GROWTH

Every aspect of the child's life affects every other aspect. The physical and social environment as well as factors of personality and physical development affects academic achievement.

4. DIVERSITY OF GROWTH

No two children are exactly alike. No two grow quite alike. Wide differences exist among children of the same age, the same family, and from the same community. Each child has his or her unique growth style.

THE TEACHING ADULT SHOULD BE FAMILIAR WITH THE LEVELS OF GROWTH IN EACH AREA, WHICH MAY OR MAY NOT CORRESPOND WITH THE CHRONOLOGICAL AGE OF EACH CHILD.

OVERVIEW: Generally includes children five to seven years of age. Period is characterized by strong perceptiveness and responsiveness to cues, and acquisition as well as attempts toward mastery of skills. Changes in physical, intellectual, and social areas are geared toward preparation and adaptation to outside life, especially in the school, and the establishment of self-identify.		
PHYSICAL	SOCIO-EMOTIONAL	INTELLECTUAL
<u>Five-Year-Old</u> - Handedness may have been established. Has fairly good large muscle development though small muscles are not yet able to manage details, e.g., tying shoes, writing, sewing. - Energy is boundless. The child can run, jump, hop, and climb. Responds to a signal and can change directions and body movement. Can walk a straight line. - Childhood diseases may occur to cause absence. Prefers simple foods. Reluctant to try new foods. - Gains independence in activities - eating, using the toilet, and dressing.	<u>Five-Year-Old</u> - Generally appears to be calm, quiet, and well balanced. Beginning to be capable of self-criticism, eager and able to carry some responsibility. - Enjoys the world of make-believe but often cannot distinguish between fantasy and reality. Fives dramatize and role-play incidents in home and community life. - Child has a strong sense of possession - does not like to share - however, will share to please adults. - Seeks praise and approval - wishes to conform and please. Explores forming relationships with other children. - Shows signs of independence, and is able to choose his or her own activities and, based on prior experience, begins to plan and complete simple projects.	<u>Five-Year-Old</u> - Reads pictures; can re-tell and invent stories. - Can identify some letters and some words; begins to write words and names. - Can identify some numbers on a calendar or a clock. Can count numbers in sequence to a point and then becomes confused. - Can identify up to four objects without counting. - Identifies some colors, sizes, shapes. - Begins to become aware of notions of sequence, time, and distance. - Can follow simple oral directions.

PHYSICAL	SOCIO-EMOTIONAL	INTELLECTUAL
<u>Six-Year-Old</u> - Large muscles are better developed than the small ones but the small muscles are now able to do some writing and tying of shoes. - Child is usually able to skip by now, as well as effectively use the other gross motor movements which are incorporated in games and physical activities such as jumping rope. - Health and appetite are generally good in group situations; can be encouraged to try new foods. - High motor activity, bodily and facial; constantly in motion; boisterous. - Tends to be clumsy and takes time to get dressed or go places. Levels of activity vary from day to day.	<u>Six-Year-Old</u> - Expects others to fit his or her way of thinking and doing; can be arbitrary and demanding as well as extremely sensitive. - Has strong need for praise and is proud of accomplishments. - Still adapting to school life with transient wish to stay at home; may be reflected in absences. - Is self-assertive; aggressive; wants to be first; less cooperative than at five; keenly competitive and often boastful. - May go to extremes in behavior; cooperative and adequate and, at the next moment, resistant and incapable.	<u>Six-Year-Old</u> - Auditory and visual discriminations are heightened. - Can follow directions with greater concentration. - Demonstrates greater span of attention. - Has begun to use word attack skills to increase vocabulary. - Interest is manifested in scientific phenomena - growing things, prehistoric animals, space. - Has awareness of rules in games. - Feels comfortable with structure and schedule, and knowing what to expect. - Develops skills in many curriculum areas but needs reinforcement in knowledge and skills previously introduced.

PHYSICAL	SOCIO-EMOTIONAL	INTELLECTUAL
<u>Seven-Year-Old</u> • Small muscles can now do writing and some sewing. Eye-hand co-ordination has developed considerably. • There is further growth in motor ability, and there is more sustained participation in organized games. Is adept at jumping rope. • Attendance is generally good. Children have strong likes and dislikes in their dietary preferences. • Periods of activity alternate with quiescence.	<u>Seven-Year-Old</u> • Is sensitive to the tone and nuances of an adult's voice and responds best to indirect correction. • Maintains relationships with another child for longer periods of time. • Enjoys dramatic play but veers toward reality. The seven-year-old loves tall tales and delights in slapstick humor. • Shows a willingness to listen to others and to share ideas. Works with a goal in mind and is able to carry a project through to completion. • Develops self-confidence as skills improve. • Feels sensitive about other's reactions. Afraid of criticism or disapproval; may leave the scene rather than be exposed to criticism. • Moods of pensiveness and resistance alternate with periods of activity; concerned about his or her performance, others' evaluations of him or her. • Can be helpful to others and enjoys socialization.	<u>Seven-Year-Old</u> • Has developed skills of inquiry and discovery to gain knowledge. • Can record simple findings. • Has a good sense of recall to help utilize previous learnings. • Listens to instructions and understands some rules. • Can listen and respond to a second direction while carrying out a first direction. • Has increasing assimilation, absorption, and integration of experiences.

FOLLOWING DIRECTIONS

- Proper handling of materials
- Collecting and distributing materials
- Classroom routines
- Simple tasks and learning games

Comprehending and following pictorial or chart directions (step 1, 2, 3, 4)

Familiarity with classroom, school, and public libraries
Locating materials on appropriate level

[illegible]

WORK STUDY SKILLS GRADES K-2
ALL SUBJECT AREAS

SELECTING, RECALLING, AND
EVALUATING INFORMATION

Recalling and presenting orally information from real experiences, and from listening and viewing experiences

Comparing oral information from more than one source

Selecting pictures to provide information

Selecting best answers from several responses

Comparing and integrating pictorial information and information from listening or other media experiences*

Comparing and integrating information from other media experiences and reading experiences

ORGANIZING INFORMATION

Classifying objects into groups by a single characteristic, e.g., roundness

Classifying words into two groups by contrasting characteristics, e.g., happy words, sad words

Classifying outcomes into two groups, e.g., Yes, No

Organizing material for a simple chart or narrative form

Classifying information by time sequence; by cause and effect

Determining categories for given information

K	1	2
XXXXXXXXXXXXXXXXXXXX		
XXXXXXXXXXXXXXXXXXXX		
XXXXXXXXXXXXXXXXXXXX		
XXXXXXXXXXXXXXXXXXXX		
XXXXXXXXXXXXXXXXXXXX		
		XXXXXX
XXXXXXXXXXXXXXXXXXXX		
		XXXXXX
XXXXXXXXXXXXXXXXXXXX		
XXXXXXXXXXXXXXXXXXXX		
XXXXXXXXXXXXXXXXXXXX		
XXXXXXXXXXXXXXXXXXXX		

ALL SUBJECT AREAS

USING GRAPHIC REPRESENTATION
AND INVESTIGATIVE TOOLS

Making and comprehending diagrams of familiar places, simple experience charts, number graphs

Awareness of names of cardinal directions (north, south, east, west) and directional terms, e.g., top, left, right

Recognizing maps and globes as representative of the world and parts of the world

Manipulating equipment for investigation of a problem

Collecting evidence by means of experimentation

K	1	2
XXXXXXXXXXXXXXXXXXXX		
XXXXXXXXXXXXXXXXXXXX		
XXXXXXXXXXXXXXXXXXXX		
XXXXXXXXXXXXXXXXXXXX		
XXXXXXXXXXXXXXXXXXXX		
XXXXXXXXXXXXXXXXXXXX		

Kindergarten

MINIMUM TEACHING ESSENTIALS

Art	98
Health Education	102
Library Media	104
Mathematics	106
Music	108
Physical Education	109
Science	112
Social Studies	117

CONTENT AREA AND TOPICSKILLS AND KNOWLEDGEDRAWING

*pp: 40-49

Time: 6-9 Weeks

Scribbles, Lines, Shapes, Patterns
and Symbols

Familiar Experiences

Provide for Individual Interpretation

Children draw intuitively and spontaneously.

Thick and thin crayons, chalk, and felt-tip pens
are used to draw.Symbols are created to represent people, animals,
buildings, trees, and flowers.

Several colors are recognized and identified.

PAINTING

*pp: 31-32

Time: 9-12 Weeks

Tempera Painting

**(Introductory sequence
is recommended)One - inch brushes and 19"x22" newsprint are used.
Control of the materials is gained by beginning
with one color and gradually increasing the
number of colors.

Designs

A variety of brush strokes, lines, and shapes is
painted.

Simple Realistic Pictures

Symbols in paint are created which are similar to
the symbols created in drawing.
The routines of painting and cleaning up are
practiced.

Fingerpainting

Finger paints are manipulated with hands and
"drawn" with fingers.* ART IN THE ELEMENTARY SCHOOLS, Grades K-6: Board of Education Curriculum Bulletin, No. 8** ART TEACHING GUIDES, PAINTING: Board of Education Curriculum Bulletin, No. 8g*** ART TEACHING GUIDES, PUPPETS AND PUPPETRY: Board of Education Curriculum Bulletin, No. 8h

CONTENT AREA AND TOPICSKILLS AND KNOWLEDGEMODELING WITH CLAY

*pp: 66-67

Time: 6-9 Weeks

Ceramic Clay and Non-toxic Clay
Substitutes

The experience of manipulating directly a malleable material has educational and psychological value. Pounding, punching, rolling, and piercing clay develops strength and dexterity in the hands.

Clay work is done on a board or other flat surface. Concepts are represented by adding pieces casually as work proceeds.

As fingers work "into" and "through" the clay, concepts of volume and texture are evoked.

The routines of working in clay and cleaning up are practiced.

BUILDING WITH BLOCKS

*pp: 114-115

Time: 4-6 Weeks

The Development of Coordination

Three-Dimensional Structures

The manipulation of blocks develops eye, hand, and body coordination.

The number and assortment of blocks are increased.

Building with blocks progresses from linear to three-dimensional structures which require balancing for stability.

Similarities between real and imaginary structures are discovered.

Sorting of blocks requires recognition and sorting of shapes and sizes.

Interest in function of structures is developed.

Toys may be added to complete concepts

CONTENT AREA AND TOPIC

CONSTRUCTING WITH WOOD

*pp: 123-124

Time: 3-5 Weeks

Simple Design Forms

Representation of Objects
in the Real World

WORKING WITH PAPER

*pp: 90-91

Time: 3-5 Weeks

Tearing, Cutting, Rolling,
Folding and Pasting

SKILLS AND KNOWLEDGE

Experiments with an assortment of wooden shapes are carried on by grouping and regrouping the pieces.

Wooden pieces are glued together for lasting construction.

Concepts of balance, open spaces, and art in the round are discovered.

Tearing or cutting with scissors changes large shapes into smaller ones.

Adhesive is used to attach paper pieces.

Colored paper shapes and strips are combined in non-representational or simple pictorial designs and pasted on a background.

Three-dimensional elements are introduced into work by rolling and folding paper.

Shifting paper shapes on a background before pasting allows for flexibility and promotes experimentation in design.

CONTENT AREA AND TOPICSKILLS AND KNOWLEDGEFABRIC AND FIBERS

*pp: 95-96

Time: 5-7 Weeks

Combination of Materials

Sewing

A variety of pre-cut cloths and trimmings is chosen and combined with an intuitive sense of design.

The pliability and tactile qualities of textiles are discovered.

Beads and buttons become elements of design.

Cloths, trimmings, beads, buttons, and other materials can be combined on a background by using glue.

A running stitch is used to sew "line drawings." Large needles and yarns are used on Dixie mesh, burlap, and other loosely woven materials.

PUPPETS AND PUPPETRY

***pp: 1-3

Time: 3-5 Weeks

Hand and Stick Puppets

Stick puppets are created by selecting, pasting, and coloring geometric shapes of cardboard.

Drawings of real or imaginary people and animals are cut out to make the stick puppets.

Hand puppets are improvised from such materials as paper bags, boxes, plastic jugs, or other available containers and improved upon with a variety of trimmings such as beads, buttons, and ribbons.

Puppets are manipulated with or without settings, in coordination with impromptu conversation.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

CLEANLINESS AND HEALTH PROTECTION

*pp. 7-8, 22-24

Time: Flexible

Good personal health habits help prevent disease.
Symptoms of illness should be reported to one's parent or teacher immediately.
Raw fruit and vegetables should be washed before eating.
Doctors and nurses help keep us well by giving examinations and immunizations.

NUTRITION

*pp. 10-12, 26-28

Time: Flexible

It is important for children to have a good breakfast every day.
It is important to try different kinds of food.

DENTAL HEALTH

*pp. 12-13, 28-29

Time: Flexible

All children lose their first set of teeth and get permanent teeth.
The dentist helps us take care of our teeth.
Whenever possible, teeth should be brushed after eating. There is a correct method for brushing the teeth.

MENTAL HEALTH

*pp. 13-15, 29-31

Also see FAMILY LIVING INCLUDING

SEX EDUCATION

Time: Flexible

Sharing and helping others create good feelings.
Each child is important.
Children are alike, yet different.
Children have different talents and abilities, e.g., athletics, music, dance.

EYES AND THEIR CARE

*pp. 15-17, 32-33

Time: Flexible

People wear glasses to see better.
It is important to work and read with good light.

CONTENT AREA AND TOPICSKILLS AND KNOWLEDGEEARS AND THEIR CARE

*pp. 17-18, 34-35

Time: Flexible

The ears should be kept clean.

Fingers and objects should be kept out of ears.

Ears should be examined by a doctor during an annual medical checkup.

Hearing should be tested regularly.

SAFETY AND FIRST AID

*pp. 18-20, 35-37

Time: Flexible

It is important to obey traffic signals. The police officer or school crossing guard directs traffic to help children cross the street safely.

Accidents should be reported to an adult.

Procedures for fire and shelter drills should be obeyed.

EXERCISE, REST, AND SLEEP

*pp. 20-21, 38-40

Time: Flexible

Exercise and play help one to be healthy.

Rest helps the body to build new energy.

Getting sufficient sleep is important.

LIBRARY MEDIA KINDERGARTEN

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

ORIENTATION TO THE LIBRARY MEDIA CENTER

The library is a collection of knowledge recorded in books, records, films, tapes, pictures, and other media organized for use by its patrons. It may be used to get information or to satisfy personal interests and needs.

Circulation procedures allow material and equipment to be borrowed for home or classroom use.

Library media materials are designed in a variety of formats, e.g., filmstrips, picture books, cassettes or magazines. Library media materials have location symbols, e.g., FS, CS, P, E, or color codes.

Good library citizenship involves:

- opening books properly so that the spine is not broken;
- handling audiovisual materials so that they are not marred;
- handling books so that pages are not torn.

There are similarities and differences in the materials and services offered by school and public libraries.

ORGANIZATION OF THE LIBRARY MEDIA CENTER

Library media centers have an arrangement for materials depending on format, e.g., picture-book shelving, picture file, filmstrip cabinet, magazine rack or tape cabinet.

USE OF LIBRARY MEDIA RESOURCES

Selection of media is based on personal interests.
Selection of media is based on curricula needs.
Picture books, easy books (fiction and non-fiction) are read for information.
Filmstrips are viewed in order to obtain information.

CONTENT AREA AND TOPICSKILLS AND KNOWLEDGEINTERPRETATION OF LIBRARY MEDIA RESOURCES

Listening and Viewing Experiences

Listening and viewing experiences demonstrate the relationship of verbal to visual communications.

Recordings are listened to in order to obtain information.

Listening and viewing experiences provided through story telling, story reading and puppetry serve to:

- stimulate imagination
- develop vocabulary
- provide pleasure
- clarify concepts, e.g., the relationship of the volume of sound to emotional responses

Listening Critically

Listening to stories is enjoyable.

Mother Goose rhymes, poetry, nursery tales, folk rhymes, alphabet books have distinctive features.

Story reading and story telling illustrate acceptable language patterns.

Fluency in speaking is developed through sharing stories.

Viewing Critically

Reading picture books gives pleasure.

Pictures fall into classifications: for instance, animals, buildings, occupations, etc.

Picture books are used to identify objects and numerals.

Picture books are used to clarify concepts, e.g., time, distance, and shape.

Picture clues are used to understand meaning (constructing a story for a wordless picture book).

Sequence of ideas is identified in printed, visual, and aural media.

Significant happenings in the story are recalled in sequential order.

MATHEMATICS KINDERGARTEN

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

NUMBER NAMES AROUND US: READINESS
FOR NUMBERS

*pp. 4, 6, 8, 10

Number names in classroom, school, and neighborhood
Number names from personal data: calendar, birthday, age,
addresses, sets of digits, number names for measures
Number names in stories and rhymes

ONE-TO-ONE CORRESPONDENCE BETWEEN
SETS OF OBJECTS

*pp. 14, 16, 18, 20, 22, 24, 26
28, 30

A set of objects for a set of children; e.g., two or three
items of clothing; one head for one body
Two-to-one correspondence, e.g., two eyes for one body
Matching a set of two, three, or more objects with a set of
related objects; e.g., buttons and buttonholes

PERCEIVING THE NUMBER IN A SET AND
ITS SUBSETS WITHOUT COUNTING

*pp. 40, 42, 44, 46, 48, 50, 52,
54, 56, 58, 60, 62, 64, 66

Concept of pair
Number concept in sets of zero, one, two, three, and four
objects
Number of objects in a subset within sets of objects

PERCEIVING THE NUMBER IN A SET AND
ITS SUBSETS: COUNTING, COMBINING, AND
SEPARATING

*pp. 84, 86, 88, 90, 92, 94, 96,
98, 100, 102, 104, 106, 108,
110, 112, 114, 116, 118, 120,
122, 124, 126, 128

Counting and patterning two through six objects
Doubles within an even number of objects, through a total
of six objects
Number names in sets of objects from 0 to 6
Number names of sets after adding one, two, three, or four
objects
Adding one object and taking away one object within sets
of six objects

MATHEMATICS KINDERGARTEN

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

NUMBER LINE CONCEPT: EARLY
LEVELS OF DEVELOPMENT

*pp. 152, 154, 156, 158, 160,
162, 164, 166, 168, 170, 172

*pp. 174, 176, 178, 180 182

Number ideas in a line of objects through 6
Number comparisons between two lines of objects

Concepts of length and weight
Estimation of length and weight
Measuring the length of an object by matching with a unit

GEOMETRIC CONCEPTS AND FRACTIONAL
PARTS: EXPLORATION AND EXPERI-
MENTATION

*pp. 192, 194, 196, 198

*pp. 198, 200, 202

*pp. 204, 206, 208, 210, 212

*pp. 214, 216, 218

Estimating halves; comparing size of 2 heaps
Dividing heaps of small objects into halves
Dividing a single object into halves
Dividing up to 6 objects into halves; number name in each
half

Estimating and comparing capacities of two cylindrical con-
tainers
Measuring capacities
Estimating and measuring capacities, such as, one-half full

Some properties of rectangular, cylindrical and spherical
objects

Concept of circle
Concept of time, and use of terms such as daytime, nighttime,
on time, late, tomorrow, yesterday, today

MUSIC KINDERGARTEN

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

MOVEMENT

Reacting to Music through
Body Movement

Body movement can express the high-low, slow-fast, and loud-soft musical concepts.

March music, $\frac{2}{4}$, $\frac{4}{4}$, $\frac{6}{8}$ has a strong rhythmic pulse.

Body movement can be expressed through walking, skipping, clapping, hopping and swaying.

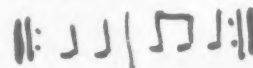
RHYTHM

* p. 5-12

The Steady Beat

Rhythm is present in the universe, in our body and in music.

Simple rhythm patterns are taught through repetition.



Basic rhythm patterns may be played on simple rhythm instruments, e.g., triangle, drum, tambourine.

SINGING

*p. 13-14

Action and Song Stories

Singing is a pleasurable experience.

Songs encompass learning experiences, e.g., activity songs, action songs and song stories. Songs are presented through the rote approach.

LISTENING

Habits of Listening

Learning to listen is important.

Some listening habits include: attention; listening for rhythm and melody; listening for mood, dynamics; responding to music by clapping, tapping.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

WHERE THE BODY MOVES

Spatial Awareness

Following cues to begin and end movement
Understanding personal and general space differences
Moving safely in general and personal space

Direction Awareness

Understanding direction: up, down, forward, backward, side-ward
Moving in various directions

Level Awareness

Differentiating between high and low levels
Performing at high and low levels in simple locomotor and non-locomotor activities
Combining high and low levels with directional changes

Awareness of Pathways

Walking in a straight line, in a circle, a square, going forward, backward, sideward

THE BODY AND ITS PARTS

Body Awareness

Identifying divisions of the body: front, back, upper, lower
Locating parts of the body: head, shoulders, arms, feet, hips, hands, fingers
Isolating body parts in movement: head, arms, legs, feet, hands, fingers

HOW THE BODY MOVES

Time, Force, Flow

Differentiating between fast and slow, light and heavy
Performing activities involving fast and slow, light and heavy

PHYSICAL EDUCATION KINDERGARTEN

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

WHAT THE BODY CAN DO

Non-Locomotor Movements

Performing, stretching, bending, elevating, pushing, pulling movements

Locomotor Movements

Performing, hopping, jumping, galloping, walking, running movements

Manipulative Movements

Rolling, bouncing and catching a large ball
Passing an object: beanbag, bowling pin, quoits (rings), board erasers

The Uses of the Parts

Communicating ideas and meaning through body movements:
hand signals, shrugs, facial expressions
Understanding that a body part can lead an action, e.g., head or feet first through a hoop
Understanding that hands and feet can support the body--making a bridge with hands and feet

RHYTHMS AND DANCE

Creative and Rhythmic Expression

Executing specific rhythmic responses: clapping, stamping, falling, galloping, hopping, jumping, leaping, marching to 4/4 and 2/4 time
Responding to rhythms imaginatively and creatively, e.g., moving as dogs, bears, rabbits, frogs, ducks
Conveying feelings through movement: sad, glad, frightened, ugly, pretty, big, strong, old, young
Expressing ideas through movement, e.g., work of a carpenter, shoemaker, policeman, fireman, parent, teacher
Reacting to sounds and to simple directions on records

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

RHYTHMS AND DANCE

Dance

Executing tapping, walking, running, hopping, jumping and skipping (may be halting.)
Combining several locomotor movements in a patterned sequence-- tiptoeing, walking and jumping
Performing The Muffin Man, Here We Go Round the Mountain, Jim Along Josie, Bow Belinda

SCIENCE KINDERGARTEN

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

SPACES AND PLACES

*pp: 28-31

Time: 2 weeks

Spatial Relationships

We are nearer to some things than to others.
Moving faster and taking giant steps get us to places faster.
Things above you are higher.
Things below you are lower.
Up and down depends upon where you are.

WHAT'S ALIVE

*pp: 32-37

Time: 3 weeks

Characteristics of Living Things

There are many kinds of living things.
Animals move, eat, breathe, grow, and protect themselves.
Plants are living things.

DISCOVERING WITH OUR SENSES

*pp: 38-43

Time: 2 weeks

How Do We Use Our Senses?

We use our nose, fingers, ears, tongue, and eyes to find out about things.

DISCOVERING WITH A MAGNIFYING GLASS

*pp: 44-47

Time: 3 weeks

Using A Magnifying Glass

A magnifying glass makes things look bigger, helps us to see things more clearly, helps us to see things we did not see before, and helps us to see what is happening.

SCIENCE KINDERGARTEN

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

UPHILL AND DOWNHILL

*pp: 48-53

Time: 3 weeks

The Characteristics of a Hill

A hill is higher at one end and lower at the other. Some are steeper than others.

Going up a hill is harder than coming down.

Placing a Ball on a Hill

A ball can roll down a hill without a push.

Some things roll or slide or do not move down a hill.

A rolling ball will continue to roll after reaching the bottom and will stop on a level surface.

The steeper the hill, the farther the ball rolls.

A push is needed to roll a ball uphill.

SEEDS AND FRUITS

*pp: 54-58

Time: 3 weeks

Where Seeds Are Found

A fruit bears seeds of its own kind.

Varieties of Seeds

Seeds have many different sizes, shapes, colors, coverings, and arrangements.

Seeds and fruits are parts of a plant.

Planting of Seeds

Seeds give rise to plants when they are watered.

HEAT CHANGES FOOD

*pp: 59-62

Time: 3 weeks

Various Foods are Changed by Heating

Applesauce, popcorn, toast, powdered gelatin, rice, spaghetti, etc., change when heated.

SCIENCE KINDERGARTEN

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

SOUNDS AROUND US

*pp: 63-70

Time: 4 weeks

Children Listen to Many Sounds

There are many different sounds wherever we are.

Loud and Soft Sounds

Some sounds are louder than others. We can control the volume of our voices and of objects around us.

High Sounds and Low Sounds

We can control the pitch of the sound.

LIGHT AND DARK

*pp: 71-74

Time: 3 weeks

How Can We Make Our Room Dark

Turning off the lights, pulling the shades, or having a cloud block the sun's light will darken a room.

Sources of Light

Light comes from the sun, moon, stars, electric light bulbs, and candles.

Formation of Shadows

Shadows can be made by stopping the light.
The closer the object is to the screen, the darker the shadow.
The shape of a shadow tells what is making it.
A shadow moves with the object making it.

GETTING WET AND DRYING

*pp: 75-79

Time: 3 weeks

Characteristics of Wet Objects

When objects get wet they may change the way they look, feel, and smell.

SCIENCE KINDERGARTEN

CONTENT AREA AND TOPIC

Soaking Up Water With Paper

How Things Dry

A MAGNET HOLDS ON

*pp: 80-83

Time: 3 weeks

What Can a Magnet Do?

WATER MIXES WITH FOOD

*pp: 84-89

Time: 3 weeks

Changes In Foods When Mixed
With Water

AFTER IT FALLS

*pp: 90-94

Time: 2 weeks

What Happens When Things Fall
To The Floor?

SKILLS AND KNOWLEDGE

Water spreads in different ways on different papers.
Waxed paper does not soak up water.

Water goes into the towel we dry it with.
Wet towels can be dried quickly by warming or fanning.
Most wet things will dry when left in the open.

Magnets pick up iron
Magnets stick to iron.
Many objects in the home contain magnets.

Lemonade, orange juice, and whole milk may be made from dried,
concentrated, or powdered ingredients.
Sugar dissolves in water and will dissolve more quickly by
stirring or crushing it, or by shaking or heating the
water.
Sugar and lemon impart a sweet or sour taste to water.
Dried fruits taste fresher when they are left in water.

When things fall and hit the floor they may break, bounce,
flatten, spread out, or pile up.

CONTENT AREA AND TOPIC

SEESAWS AND BALANCES

*pp: 95-99

Time: 2 weeks

How Is A Seesaw Used To
Balance Things?

BLOWING SOAP BUBBLES

*pp: 100-105

Time: 1 week

How Can We Make Soap Bubbles?

SCIENCE KINDERGARTEN

SKILLS AND KNOWLEDGE

The greater the height of the fall, the greater the change.
Things that are similar will act the same way when they strike
the floor.

Equal weights can balance each other on a seesaw.
A light weight can balance a heavy one if the heavy one moves
closer to the seesaw.
A seesaw can be used as a scale.

Bubbles can be made by blowing air into soapy water.
They have different shapes and sizes.
A soap bubble is soapy water and air.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

HOW DO WE LIVE TOGETHER IN THE CLASSROOM?

Techniques for sharing activities and materials are necessary for working independently and in small groups. These are developed cooperatively with teacher and class through the process of exploration.

HOW DO WE LIVE TOGETHER
IN THE SCHOOL ENVIRONMENT?

We travel in many ways to and from school. Many people are needed in the school to provide services.
We have a responsibility for the proper use and care of the school and its facilities.

HOW DOES THE FAMILY MEET
ITS NEEDS?

There are many kinds of families (nuclear, single parent, two parent, adoptive, foster, extended families, etc.)
Family members have different roles within the family.
All families need a home, food and clothing.
All families need a source of income to buy what they need - sources of income vary in N.Y.C.
Family members have different jobs and responsibilities that make them interdependent.
There is a difference between needs and wants.
Needs and wants differ from place to place.
Families who come from other parts of the world contribute to N.Y.C.

HOW DO PEOPLE NEAR AND FAR HELP OUR CITY?

We depend upon people in our own country and in other countries near and far.
We learn from people in other countries and they learn from us.
Our country is made up of people who have come from other countries to live here.
People from many lands have made contributions to our country.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

WEATHER AND SEASONS

Weather and seasons vary in different places and parts of the world.
Weather and seasons change family needs.
Weather and seasons vary the way people live and work.
Weather and seasons vary the way in which we participate in various activities such as ice skating, swimming, etc.

HOW DO FAMILIES ADJUST TO CHANGE?

Families change in size, composition and move into different physical settings and life styles.
Families live in neighborhoods, boroughs, countries, states, etc.
Families move up, down and across the economic scale.

HOW DO WE OBSERVE SPECIAL DAYS IN SCHOOL AND AT HOME?

Flags of all countries have special meanings rooted in the past. We celebrate American holidays because they commemorate special days in our country's past and present.
We celebrate special events and honor individuals and groups of people.

WORK STUDY SKILLS

Diagrams are cooperatively created for classroom, home, route to school.
Dates and locations are related to personal experiences.
Simple terms of location and direction are used: left, right, top, bottom.

Grade 1

MINIMUM TEACHING ESSENTIALS

Art	120
Health Education	125
Library Media	127
Mathematics	128
Music	131
Physical Education	132
Science	135
Social Studies	138

CONTENT AREA AND TOPICDRAWING

*pp: 49-50

Time: 6-9 Weeks

Lines, Shapes, Colors and Designs

Drawings Based on
Real and Imaginary Worlds

Drawings Based on Stories,
Songs and Poems

PAINTING

*pp: 31-32

Time: 6-9 Weeks

Tempera Painting

Designs

Simple Realistic Pictures

Watercolor Painting

SKILLS AND KNOWLEDGE

Thick and thin crayons, pencils, brushes, and felt-tip pens are used with increasing control on a variety of surfaces. Manila paper 9"x12" is most frequently used. Other sizes and textures may be used.

Symbols, similar to those created in kindergarten, become more detailed and more easily recognizable.

Sizes of figures begin to vary as they are lined up on a "base-line" at bottom of the paper.

Teacher elicits answers to questions; children focus their thoughts for development as drawings.

One-inch brushes and 19"x22" newsprint are used. Narrower brushes are introduced when children feel need for smaller details.

Each color is allowed to dry before painting another color next to, or on top of it.

Symbols, similar to drawn symbols, are painted. The concept of the "base-line" is introduced by many into their paintings.

Established routines are used for beginning and ending the painting experience.

*ART IN THE ELEMENTARY SCHOOLS, K-6: Board of Education, Curriculum Bulletin No.8

** ART TEACHING GUIDES, PUPPETS AND PUPPETRY: Board of Education, Curriculum Bulletin, No. 3h

*** DESIGN ACTIVITIES FOR THE CLASSROOM, John Lidstone, Davis Publications, Massachusetts, 1977

CONTENT AREA AND TOPICSKILLS AND KNOWLEDGEMURAL MAKING

***pp: 86-89

Time: 4-6 Weeks

Group Pictures

Paper Mural with
Cut or Torn PaperPaper Mural with Figures
Cut Out from DrawingsDrawing skills are practiced with chalk on the chalkboard.
Working with others, group decisions are made.Improved cutting, tearing, and pasting skills
permit more complex compositions.The concept of overlapping figures being re-
presentative of forms near and far away is
developed.MODELING WITH CLAY

*pp: 67-68

Time: 6-9 Weeks

Clay Designs

Clay Figures and
Animals

Beads and Jewelry

As clay is manipulated by punching, piercing,
rolling, and squeezing, motor control is
increased.Pieces are joined by simply pressing them to-
gether after roughening surfaces to be joined.Some children are more skilled at communicating
through modeling clay than through drawing.Clay modeling is an intuitive process that pro-
ceeds according to the child's natural stage
of development.Increased opportunity to experiment will promote
the rate of growth.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

BUILDING WITH BLOCKS

*pp: 114-115

Time: 3-5 Weeks

Linear and Vertical

Arrangements

After experimenting with linear arrangements, progress is made toward vertical building. Experimental manipulation of the blocks leads to an understanding of the importance of balance. Ways are invented to enclose and bridge space. The ability to observe, to imagine, and to think grows with each new experiment in enriching the form of a structure.

ASSEMBLAGE OR CONSTRUCTION WITH WOOD AND FOUND OBJECTS

pp: 123-125

Time: 4-6 Weeks

Grouping and Gluing

Experiments are conducted with an assortment of wooden shapes and found objects. After grouping and regrouping pieces, they are glued together to create a permanent structure. Balance, design, open space, and art in the round are experienced. Constructions are associated with objects in the real world such as furniture, cars, bridges, and houses.

DESIGNING WITH PAPER

*pp: 91-92

Time: 4-6 Weeks

Two-Dimensional Design:

Realistic or Non-realistic

Three-Dimensional Design

Cutting, tearing, and pasting skills are practiced. Intuitive choices are made as shapes are arranged on a background.

Cutting, tearing, rolling, folding, and twisting paper increases manual dexterity. Final arrangement on a background introduces new spatial concepts. One can look "at," "into," or "through" forms.

CONTENT AREA AND TOPICSKILLS AND KNOWLEDGEFABRIC AND FIBERS

*pp: 95-96
 Time: 4-6 Weeks
 Fabric Collage

Stitchery

Stuffed Shapes

PUPPETS AND PUPPETRY

*pp: 1-3
 Time: 4-6 Weeks
 Stick Puppets

Fabric is cut with sharp scissors.
 Fabrics and trimmings are used to create collages
 as colors and shapes are combined.

A running stitch is used to sew fabrics. The needle
 can go backwards through the fabric, "closing
 the gates." Colored materials can be combined.

A rough overcasting stitch allows for sewing around
 simple pre-cut shapes which can be stuffed.
 Large needles and yarns are used to sew on Dixie
 mesh, burlap, or other loosely woven fabric.

Figures are drawn on cardboard.
 Figures are cut out of cardboard and mounted on
 sticks.
 Puppet heads are made from paper bags, boxes,
 plastic containers, and styrofoam balls.
 Heads are adorned with a variety of materials;
 expressive features are created.
 Original ways are devised to make bodies, heads and
 limbs move.
 Puppetry stimulates verbal expression, story inter-
 pretation, and creative interaction among peers.
 Puppets can talk, tell jokes, and sing songs.

CONTENT AREA AND TOPIC

PRINTMAKING

***pp: 52-70

Time: 3-5 Weeks

Stamping

Monoprints

SKILLS AND KNOWLEDGE

The process of repeating a pattern is performed by stamping paper or cloth with inked objects such as sticks, cut erasers, pieces of wood, and pieces of potato.

Brush paintings or fingerpaintings are made on a non-absorbent surface such as formica or plexiglass.

A sheet of newsprint is placed on top of the wet painting, and carefully peeled off. This is a print of the original.

The print is a reverse of the original.

CONTENT AREA AND TOPICSKILLS AND KNOWLEDGECLEANLINESS AND HEALTH PROTECTION

*pp. 41-43

A person must practice good personal health habits in order to remain healthy and well.

It is important to bathe frequently.

It is important to keep hands, fingers, and objects away from one's nose, mouth, and face.

Many times, a cold is the first sign of an illness.

The family doctor helps boys and girls to keep healthy.

NUTRITION

*pp. 46-48

There are many foods that help to keep the body healthy.

DENTAL HEALTH

*pp. 49-50

The teeth are used every day and are important for everyday living.

EYES AND THEIR CARE

*pp. 53-55

It is important to keep fingers and other objects away from the eyes.

Seek the help of an adult if something gets into the eye.

The eyes should be relaxed after close work.

EARS AND THEIR CARE

*pp. 55-57

It is important to keep fingers and other objects away from the ears.

Loud noises can be harmful to the eardrum.

* HEALTH EDUCATION IN ELEMENTARY SCHOOLS, Board of Education, Curriculum Bulletin No. 2

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

SAFETY AND FIRST AID

*pp. 57-60

There would be fewer accidents on the street if children followed regulations that have been set up for safety. It is important to clean up areas after they have been used. It is dangerous to go near or touch electric switches and outlets with wet hands. Any wound should be cleansed thoroughly. Strange animals can be dangerous.

EXERCISE, REST, AND SLEEP

*pp. 60-62

Sufficient sleep and rest are important for one's health.

MENTAL HEALTH

*pp. 51-52

Also see FAMILY LIVING INCLUDING
SEX EDUCATION

Parents, teachers, or other adults who are important in one's life should be consulted when help or advice is needed about personal problems.

LIBRARY MEDIA GRADE 1

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

ORIENTATION TO THE LIBRARY MEDIA CENTER

Review and mastery of previous skills.
Each medium in the Library Media Center is identified, e.g.,
picture books, filmstrips, cassettes, records.
The author is the creator of the text of the book.
The title is the name assigned to the book.
The illustrator produces the pictures which accompany the text.

ORGANIZATION OF THE LIBRARY MEDIA CENTER

Filmstrips, cassettes and records are found in a section of
of the library arranged in a logical order.

USE OF LIBRARY MEDIA RESOURCES

Alphabetizing by the first letter helps in the location of
picture books arranged by author.
Recognition of P and E on spines, and F/S on cans, leads
to the location of picture books, easy books and
filmstrips.
Browsing involves using illustrations to select materials.
Books containing stories on family, pets, seasons, etc.
are looked at independently.

INTERPRETATION OF LIBRARY MEDIA RESOURCES

Discussion, films, story reading, and storytelling:

- a) confirm experience, e.g., a story about making
a new friend;
- b) expand experience, e.g., story of a child in
another country;
- c) develop a sense of fantasy, e.g., story of the
Gingerbread Boy.

Use of books and audiovisual materials in the Library Media
Center provides essential experiences for learning to read.

MATHEMATICS GRADE 1

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

SETS; NUMBER; NUMERATION

*pp. 3-9, 12-14

Number names

One-to-one correspondence; two-to-one correspondence; many-to-one correspondence

Matching elements of two sets of objects using comparison terms such as: more, fewer, as many as, greater than, less than

Number property of sets of objects

Concepts of "before" "after" and "between" with respect to number

Number comparisons

Ordinal use of the numbers one through ten

Counting objects by ones, by twos, by fives, by tens, to 50

Grouping objects by tens and by ones; beginning ideas of place value concept

Ordering numbers through 50

Reading and writing numerals through 50

ADDITION OF WHOLE NUMBERS

*pp. 7-14

Basic facts: sums 1 through 12

Addition with more than two addends, sums through 12

$$\begin{array}{r} \text{e.g., } 5 \\ 1 \\ +6 \\ \hline \end{array}$$

SUBTRACTION OF WHOLE NUMBERS

*pp. 7-14

Basic facts: sums 1 through 12

FRACTIONAL NUMBERS

*pp. 11-13

Estimating halves and fourths of a whole object; and of sets of things

Estimating one-half of the capacity of a container

Concept of halves and fourths of a single object

217

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CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

GEOMETRY

*pp. 5, 10, 13, 15

Position terms, e.g., inside, outside, on, center
Recognition of solid figures: rectangular, cylindrical, spherical, triangular, as exemplified by real objects such as juice cans, shoe boxes, etc.
Recognition of properties of plane figures: rectangles, squares, circles, triangles
Concept of symmetry in paper folding

MEASUREMENT

*pp. 3, 5-11, 15

Money:
Recognition of coins and value relationships among pennies-nickels-dimes
Time:
Clock-concept of hour, half-hour; telling time by the hour, by the half-hour
Calendar-names of days of the week; relationships: days-week;
Terms such as today, tomorrow, yesterday, day before, day after
Capacity:
Non-standard units of capacity, e.g., jarful, glassful;
Terms such as: full, almost full, empty, more, less
Weight:
Non-standard units of weight; terms such as: heavier, heaviest; lighter, lightest
Temperature:
Reading thermometer using non-numerical expressions such as: higher-lower, warmer-colder
Linear:
Non-standard units of length, terms such as: longer, longest; twice as long; one-half as long

MATHEMATICS GRADE 1

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

ALGEBRAIC CONCEPTS

*pp. 6, 7, 9, 10

Symbols: +, -, =, placeholder

Reading and writing number sentences

Expressing word problems as number sentences

Associating numbers with points on a number line

STATISTICS; GRAPHS; PROBLEM
SOLVING; PROBABILITY

*pp. 5, 10, 13

Tallying

Collecting, sorting and organizing two sets of data by means
of objects, pictures, cubes, discs, paper squares, etc.

Discussing quantitative relationships relevant to the graphs;
e.g., more children ride to school than walk to school

Developing original number stories

Dramatizing number stories

Writing number sentences for pictured, dramatized, and
original word problems

Solving word problems involving addition and subtraction
facts

MUSIC GRADE 1

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

MOVEMENT

Improvisation

Body movement is a form of musical interpretation.

Contemporary music by composers such as Prokofiev and Copland encourages a free style of interpretation and improvisation.

RHYTHM

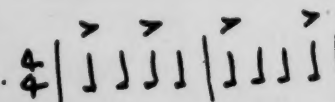
* p. 12

Creating Rhythms

Rhythm is a fundamental element of music.

Rhythm is used for communication.

A steady beat with accents may be performed.



Echo clapping is an important technique in musical development.

SINGING

* p. 22-24

Repertoire Songs

Songs can tell us about people, animals and other things.

Correct pitch and sustained quality are important to good singing.

*TEACHING MUSIC Grades K-4, 1978-1979. Curriculum Bulletin No. 5

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

WHERE THE BODY MOVES

Spatial Awareness

Utilizing more general space. Reporting quickly to personal space--less bunching and clustering--moving independently
Responding more quickly to cues.
Appreciating the use of larger areas for movement in running and skipping
Beginning to appreciate proper use of personal space when handling small equipment
Understanding outside, inside, through, around

Direction Awareness

Responding faster to directional terminology; changing direction on call: forward, backward, sideward
Combining direction with slow locomotor and non-locomotor activities

Level Awareness

Differentiating among high, medium and low
Improving response in changing levels
Combining level changes with direction changes in locomotor and non-locomotor activities, e.g., walking forward like a puppy (close to the ground)

Awareness of Pathways

Difference between direct and indirect routes: short route, long route, round-about route
Moving in specific geometric pathways: circle, square, line
Combining directional changes in the use of pathways: backwards, forwards, sideways in a circle or line

THE BODY AND ITS PARTS

Body Awareness

Distinguishing between upper and lower, front and back and side of the body

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Body Awareness (cont.)

Understanding right and left side, right and left foot, hand, ear, knee, arm
 Associating specific body parts with major divisions of the body: head in upper, foot in lower, shoulder in upper
 Moving specific body parts in various directions: arms, (legs) up and down, back, forth and sideways: head side to side, up and down
 Understanding in front of, behind, underneath and to the side of the body
 Discriminating visually and auditorily--locating objects, identifying colors, voices, sounds, evidenced by moving a part of the body

HOW THE BODY MOVES

Time, Force, Flow

Recognizing acceleration and deceleration
 Improving application of acceleration and deceleration in locomotor and non-locomotor actions
 Understanding quantitative aspects of time in movement--the greater the distance, the longer the time

WHAT THE BODY CAN DO

Non-Locomotor Movements

Improving stretch, bend, elevate, push, pull, sway, swing, curl, turn

Locomotor Movements

Skiping with greater ease, rolling sideways and forward

Manipulative Movements

Improving rolling, bouncing, catching large balls

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

WHAT THE BODY CAN DO

Manipulative Movements (cont.)

More skillfully manipulating various pieces of small equipment --fleece balls, quoits, beanbags
Beginning rope-jumping

The Uses of the Parts

Improving communication of ideas and feelings through movement
Understanding body language more easily
Leading an action with two body parts: frog jump and rabbit hop
Parts meeting and separating, e.g., jump, feet apart and together
Beginning to develop symmetry in movement--swinging arms together, up and down, or in same direction
Executing stunts: log roll, tight rope walk

RHYTHMS AND DANCE

Creative and Rhythmic Expression

Improving rhythmic locomotor response--skipping, hopping, jumping, galloping, running to music or percussive instrument
Using body parts more imaginatively and creatively

Dance

Executing specific dance patterns: forward and back, swing, skip, draw step, promenade, twos and threes
Performing Children's Polka, Shoemaker's Dance, Shoo Fly, Chimes of Dunkirk

CONTENT AREA AND TOPICSKILLS AND KNOWLEDGEWEATHER FROM DAY TO DAY

*pp: 107-119

Time: 10 weeks

A Sunny Day

The sun heats and lights the earth.
 The sun helps to dry wet objects.
 Shade is formed when sunlight is blocked.
 We read the thermometer to find out about the temperature of the air.

A Windy Day

Wind is moving air.
 Wind pushes and carries things.
 Wind can do damage.
 Wind makes waves.
 Wind helps dry things.

Cloudy and Foggy Days

Clouds differ in size and shape and position in the sky.
 A cloud is made of tiny drops of water, or crystals of ice.
 Clouds are moved by wind.
 Fog is a low cloud and makes things feel moist and difficult to see.

A Rainy Day

Rain is water that comes from the clouds.
 Rain soaks into some things but not into others.
 Some rainwater goes back into the air.

A Cold Day

Water may freeze and form ice.
 The thermometer goes down.
 Heat keeps us warm.
 Salt melts ice.

A Snowy Day

Snowflakes have different shapes.
 Snow may become ice and melts to water.
 We use safety precautions in the snow.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

ANIMALS AND PLANTS IN
OUR NEIGHBORHOOD

*pp: 134-148

Time: 9 weeks

Animals in Different
Environments

Plants In Different Environments

Animals need air, food, water, and shelter.
Animals protect themselves in many ways.

Plants have roots, stems, leaves, flowers, and seeds.
Plants change with the seasons.

SOUNDS AROUND US

*pp: 149-155

Time: 9 weeks

Cause of Sound

Different Kinds of Sound

When sounds are made, some things have to vibrate.

Different kinds of objects vibrate to make different sounds.

MOVING ON LAND AND WATER

*pp: 156-169

Time: 12 weeks

Methods of Movement

Stopping a Moving Object

Objects on wheels move more easily.
Pushing or pulling, wind-up springs, motors, and slides
cause objects to move more easily.

When a car comes to a sudden stop, the passengers move in
a direction opposite to the direction of the stop.
Straps, poles, or safety belts are used for protection.
Bicycles should be stopped slowly.

Turning Corners

It is easier and safer to move around a corner slowly than
rapidly.

When a car turns a corner fast, passengers are tilted to
the side.

A bicycle should slow down on turns.

Safety

Traffic controls are needed.

Floating and Sinking

In water, some things will float, some will sink.
Of two objects the same size and shape, the lighter one will
probably float.

CONTENT AREA AND TOPICSKILLS AND KNOWLEDGE

Building Rafts

Rafts may be made by tying together objects which float. Things filled with air make good rafts.

Tipping Over In Water

Sailboats are steadier when the mast is lower. They have keels to help balance the hull. Loads must be placed at the center of the boat.

An Indoor Boat Show

A boat can be pushed or pulled. Boats are moved by wind, electric motors, springs, rubber bands, or water currents.

Staying Afloat

A material filled with air or lighter than water will keep an object afloat.

Pushing an Inflated Balloon
Under Water

Objects in water are pushed up by the water.

Sinking a Boat

If enough weight is put into a boat, it sinks.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Review and reinforce kindergarten learnings to meet individual and class needs, stressing family as a unit.

PEOPLE LIVE IN GROUPS - FAMILIES, SCHOOL, PLAY AND WORK GROUPS

Communities Have Similar Facilities to Meet the Needs of People Living in Them

Families vary in size
Families change
Families around the world are alike and different

Various facilities serve families in a community, neighborhood - grocery stores, department stores.
Various facilities help people communicate with people in other communities.
Various community facilities help people - police, fire, hospital.

HOW DO WORKERS SUPPLY MANY NEEDS?

Families Depend on Work of Many People to Supply Their Needs, Wants, and Services

Some people provide products, some perform services.

Kinds of Work Depend on Many Factors

Types of work depend upon climate, location, seasons, education.

Dividing the Work Gets It Done Better

People need different skills for different jobs.

HOW DOES GOVERNMENT SUPPLY SERVICES TO MEET PEOPLES' NEEDS?

People Need Government to Supply Services

Government is a way of organizing people. The organization of families is like a government in many ways.
Governments are formed to satisfy needs, provide services and for protection.

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People Need Services to Keep Them Healthy and Safe

Government provides services such as health, protection, education, and recreation.

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CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

People Pay Money to the Government to Pay for These Services

People pay money in the form of taxes to pay for these needs and services.

People Have a Responsibility to Use These Services Wisely and with Care

People can change the laws and the government officials. All individuals have responsibilities to their family, community, and country.

HOW ARE COMMUNITIES INTERDEPENDENT?
(Case Study of Food)

Foods We Eat Are Produced in Places Near and Far

Weather, climate, seasons affect food production. Some foods must be processed to prevent spoiling.

Many Forms of Transportation Bring Food to N.Y.C.

There are many different kinds of vehicles bringing food to the city: trains, planes, trucks, ships.

We Buy Our Food in Stores

There are many different kinds of stores and ways to purchase food: supermarkets, outdoor market. The geography of a community affects the type of goods or services it produces and needs.

HOW DO CHANGES OCCUR IN THE COMMUNITY?

How Our Community Started Long Ago

Native Americans were the earliest families. Dutch and English were the first settlers. The first settlers had to adapt to the land as they found it. Various religious and national groups lived in N.Y.C. during the early settlements.

Our Community Grew and Changed

Some families move into communities, others move out. People who live in communities come from other parts of the U.S.A. and the world.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

HOW DO COMMUNITIES OBSERVE SPECIAL DAYS?

Special Days Relating to Family and Community Events

Some special days relate to seasons; e.g., Arbor Day, Thanksgiving.
Some special days relate to the family: birthdays, homecomings.
Some special days relate to groups in the community: Puerto Rican Discovery Day, Jewish Heritage Week, Black History Week.
Some special days celebrate national holidays.

Special Days Relating to the Customs of Various Groups of People

Chinese New Year, 3 Kings Day and Channukah are holidays celebrated by many people in our city.

Symbols of Our Country and Their Meanings

Our flag, the salute, patriotic songs and historical landmarks are a heritage we all share.
Practices in democratic living in our class, school, community, city, state affect our daily lives.

Special Days Relating to International Events

Recognition is given to special days, events, and people around the world.

CURRENT AFFAIRS

Current affairs are studied to see the effect on children's lives, and to assist in developing civic responsibility.

WORK STUDY SKILLS

Title page and table of contents are used to find information. Books, newspapers, magazines are used as sources of information in class and school library. Skills of interviewing are begun.

Titles are chosen for pictures and bulletin boards.
Calendars are made and used to refer to each day's date, and special days.

Direction names (north, east, south, west) are used by teacher in relation to classroom location, trips in neighborhood.

Grade 2

MINIMUM TEACHING ESSENTIALS

Art	142
Health Education	147
Library Media	149
Mathematics	150
Music	153
Physical Education	155
Science	158
Social Studies	162

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

DRAWING

*pp: 49-50
Time: 6-9 Weeks

Drawings Based on
Children's Experiences

Drawings Based on Fantasy

Drawings Based on Stories,
Poems and Songs

Thick and thin crayons, pencils, felt-tip pens, and chalk are used to draw.

Paper of various sizes, shapes, and textures is used.

Symbols for people, animals, buildings, cars, trees, flowers, and other objects are created.

Drawings acquire more details such as hair, shoes, windows, curtains, wheels, leaves and petals.

Fantasy creatures become very popular as subject matter.

Skillful questioning is necessary to activate drawing by second graders.

Base line still appears in many pictures.

Greater control of coloring is demonstrated.

Drawings show an increased awareness of details describing people, places and things.

CONTENT AREA AND TOPICSKILLS AND KNOWLEDGEPAINTING

*pp: 31-36

Time: 6-9 Weeks

Tempera

Design Paintings:
Experimenting with
Color, Pattern, and
Texture

Paintings with
Story Content

Watercolor Painting

MODELING WITH CLAY

*pp: 67-68

Time: 4-6 Weeks

Standing Shapes and
Using Slip

Surfaces and Textures

One-inch, $\frac{1}{4}$ -inch hard bristle brushes and large, round, soft hair brushes are used on 19"x22" newsprint. Materials are used with greater self-reliance. The ability to handle a number of colors is gradually increased.

More varied shapes are used. Color is put down next to color. Patterns and textures are created by painting one color over another color after the first color has dried.

Paintings of people, animals, trucks, cars, flowers, trees, and buildings reflect the level of drawing ability.

Previous experience provides skills and understandings to build upon with confidence.

More proficiency is shown in modeling clay into standing shapes. Pieces of clay are added more permanently by "welding" them with slip. An awareness of the brittle quality of very thin extensions of clay is developed. Fingers are used to create smooth surfaces. Tools are used to achieve different surface textures.

CONTENT AREA AND TOPIC

DESIGNING WITH PAPER

*pp: 91-92

Time: 2-4 Weeks

Design

Totem Poles
and Creatures

LETTERING

*pp: 77-78

Time: 3-5 Weeks

The Brush Stroke

SKILLS AND KNOWLEDGE

Varieties of shapes are cut and torn from paper of differing colors, textures, and weights. Choices are made from among many colored materials.

Paper is folded, curled, and twisted into many shapes.

Methods are devised to attach new shapes to free standing paper or cardboard forms, such as columns or boxes.

Free standing, three-dimensional designs are thus created.

Lined newsprint, $\frac{1}{4}$ -inch bristle brushes, and tempera paint are used.

The letters of the alphabet are analyzed and divided into groups according to the kinds of lines that form them.

The following brush strokes are practiced:
I-√ () 0

The brush is held in the same plane as the line of the stroke so that all lines are evenly thick.

Starting with vertical and horizontal letters, all the letters are practiced.

Children practice lettering their names and simple sentences.

CONTENT AREA AND TOPICPRINTMAKING

**pp: 54-69

Time: 3-5 Weeks

Rubbing

Stamping: Vegetable
and Cardboard Printing

PUPPETS AND PUPPETRY

***pp: 1-3

Time: 3-5 Weeks

Stick Puppets, Finger Puppets,
and Hand Puppets

SKILLS AND KNOWLEDGE

An alternative use of the crayon is mastered as the flat side of the crayon is rubbed over paper under which a leaf, a cut-out shape or a textured surface has been placed.

This process produces one or multiple images.

Rubbing increases awareness of texture and textural variations.

Skill is acquired in the process of repeating a pattern as a variety of inked natural objects is used to create designs.

A second color can be used to overprint the first color after it has dried.

Plastic spoons, styrofoam balls, paper cups, cardboard cylinders, and small boxes are used as the core for puppet heads or the base for puppet creatures.

Fabric is glued or attached with rubber bands to create expressive features. Features include different hair styles, eyes, antennae, tusks, and other protruberances.

Puppets are manipulated against simple backgrounds in coordination with simple dialogue. Jokes are told; songs are sung; conversations are improvised.

Puppets act as a release for verbal expression by shy children and as a medium through which children "act out" behavior.

CONTENT AREA AND TOPIC

CONSTRUCTING WITH WOOD
AND OTHER MATERIALS

*pp: 123-125

Time: 4-6 Weeks

Objects from the Real World,
Imaginary World, and Non-
objective Structures

SKILLS AND KNOWLEDGE

Preplanning is part of the process of selecting wood pieces and other materials to create constructions.

Pieces of wood and other materials are compared in size in order to balance constructions.

Color can be added to constructions with tempera paint.

No more than one or two colors should be applied to main body of the construction.

Touches of other colors may be used for trim or decoration.

CONTENT AREA AND TOPICSKILLS AND KNOWLEDGECLEANLINESS AND HEALTH PROTECTION

*pp. 63-65

Germ's are found everywhere; they are so tiny that they cannot be seen without a microscope.
Some germs can be harmful if they enter the body.
Sick people should rest quietly and comfortably, and have the benefit of medical advice.
Sometimes it is necessary to go to a hospital for special treatment.
People should have medical examinations on a regular basis.
Immunizations prevent certain diseases by defending the body from harmful germs.

NUTRITION

*pp. 69-70

Food is important for growth, repair of tissues, energy, and heat.

DENTAL HEALTH

*pp. 70-73

Children should visit the dentist for regular checkups.
Brushing and flossing help clean the teeth.
A nutritious diet helps teeth to remain strong and healthy.
Sweets and soft drinks may be harmful to the health of the teeth.

MENTAL HEALTH

*pp. 74-77

Work, exercise, and play make a person feel better.
Sufficient rest and sleep make a person feel better.

EYES AND THEIR CARE

*pp. 77-79

The eyes help us see the world around us.
The eyes are delicate organs and need proper care.

* HEALTH EDUCATION IN ELEMENTARY SCHOOLS Board of Education Curriculum Bulletin No. 2

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

EARS AND THEIR CARE

*pp. 80-82

The sense of hearing is important to one's safety, health, and ability to learn.

Children whose ears bother them should report this condition to their parents or teacher. An ear specialist will give treatment and help if it is necessary.

SAFETY AND FIRST AID

*pp. 82-87

School safety should be practiced regularly in classrooms, halls, and playgrounds.

Safety rules should be followed when engaging in water sports. Certain objects in the home, e.g., matches and electrical appliances, require special care to insure one's safety. There are proper procedures for taking care of minor cuts and bruises.

EXERCISE, REST, AND SLEEP

*pp. 87-90

Daily exercises such as rhythms, games, and dance are important for one's health.

Rest and sleep are necessary for body growth and development.

LIBRARY MEDIA GRADE 2

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

ORIENTATION TO THE LIBRARY MEDIA CENTER

Review and mastery of previous skills.
 Publisher of a book is the person or company responsible for the book's being produced and made available to the public.
 The terms spine, jacket, narrator have particular meanings when used in the Library Media Center.

ORGANIZATION OF THE LIBRARY MEDIA CENTER

Stories are recorded in books, on cassettes, record discs, films, and filmstrips.

USE OF LIBRARY MEDIA RESOURCES

Records and tapes are located by titles found on jackets and cans.
 Books are located by the authors found on the spines and the author and title found on the title page.
 In the same issue of a magazine, a variety of kinds of information and styles of writing may be found.
 Magazines may contain different types of illustrations.

INTERPRETATION OF LIBRARY MEDIA RESOURCES

Main idea is identified from material in a number of formats:

- a) book
- b) filmstrip
- c) recording, tape and disc.

Traditional and modern children's literature and artistic films are used to explore appropriate concepts and values.
 Oral reports are a means of sharing reading, listening and viewing experiences.
 The excellence of Caldecott Medal winners can be demonstrated by examining their illustrations and texts.

MATHEMATICS GRADE 2

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

NUMBER; NUMERATION

*pp. 6, 10, 17, 28, 52, 82,
104, 122, 131, 133

Number concepts of sets of objects
Ordering whole numbers
Ordinal use of numbers
Place value concepts - through 100
Estimating quantities
Comparing and ordering numbers
Counting by twos, threes, fours, fives, tens
Rounding numbers to the nearest ten
Reading and writing two-digit numerals in expanded form

ADDITION OF WHOLE NUMBERS

*pp. 40, 54, 63, 89, 94, 96, 135

Basic facts: sums through 18
Addition with more than two addends, sums through 18

$$\begin{array}{r} 7 \\ 3 \\ +1 \\ \hline \end{array}$$

Algorithm for computing sums of two addends, no exchange,
sums less than 100

$$\begin{array}{r} 36 \\ +21 \\ \hline \end{array}$$

Algorithm for computing sums of tens and multiples of ten

$$\begin{array}{r} 30 \\ +20 \\ \hline \end{array} \quad 30 + 20 = \square$$

Algorithm for computing sums of more than two addends, no
exchange

$$\begin{array}{r} 23 \\ 14 \\ +31 \\ \hline \end{array}$$

MATHEMATICS GRADE 2

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

SUBTRACTION OF WHOLE NUMBERS

*pp. 43, 58, 67, 79, 89, 98,
100

Basic facts: sums through 18
Concept of inverse operations, e.g., $6+2=8$ so $8-2=6$
Algorithm for computing differences, no exchange

$$\begin{array}{r} 36 \\ -15 \\ \hline \end{array}$$

Subtracting ten and multiples of ten from numbers through 99

$$20-10=\square$$

MULTIPLICATION OF WHOLE NUMBERS

*pp. 107, 123, 144, 157

Concept of multiplication as repeated addition
Basic facts: twos through 5 twos, threes through 5 threes, fours through 5 fours, fives through 5 fives

DIVISION OF WHOLE NUMBERS

* pp. 110, 125, 146, 161

Concept of division
Basic facts: twos through the number of twos in 10, threes through the number of threes in 15, fours through the number of fours in 20, fives through the number of fives in 25

FRACTIONAL NUMBERS

*pp. 71

Concept of one-half of a whole
Symbol for one-half, $\frac{1}{2}$
Concept of thirds of a whole

MATHEMATICS GRADE 2

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

MEASUREMENT

*pp. 33, 47, 102, 114, 154,
167, 170-173

Linear:

Estimating lengths
Non-standard units of length
Standard units of length - meter, foot

Money:

Value relationships among penny-nickel-dime-quarter

Time:

Calendar-relationship between months-years; days-weeks
Clock - concepts of hour and half-hour; telling time
to the hour and half-hour

Temperature:

Concept of temperature as a measure of heat
Reading thermometers using non-numerical expressions
e.g., higher-warmer; lower-cooler

Capacity:

Non-standard units of capacity
Standard units of capacity - liter, quart

Quantity:

Concepts of dozen and half-dozen

Weight:

Non-standard units of weight
Standard units of weight - kilogram, pound

GEOMETRY

*pp. 61, 120

Some characteristics of the geometric shapes: rectangle, square,
triangle, circle

Concept of symmetry

GRAPHS; PROBLEM SOLVING; PROBABILITY

*pp. 35, 49, 50, 69, 142

Translating word problems into mathematical sentences
Procedures for analyzing and solving word problems
Collecting, organizing, and discussing data

MUSIC GRADE 2

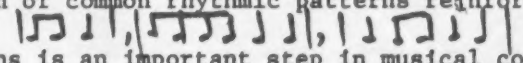
CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

RHYTHM

Reading Rhythms, Accents and Rests

Rhythm plays an essential role in the development of music.

Reading musical notation of common rhythmic patterns reinforces musical learnings. 
Composing rhythm patterns is an important step in musical composition.

SINGING

* p. 17-20

Musical concepts are realized through singing, e.g., high-low pitch; loud-soft dynamics.

Musical Concepts

Song material is used to bring about an awareness of in-time singing (pitch matching and sustained quality).

LISTENING

* p. 25-30

Listening is a readily available vehicle through which children discover meter, mood, pitch and dynamic differences.

The Concert Hall

Attendance at live musical performances, in school and out of school, add an important aspect to the listening experience. (Young Audience performances)

LISTENING

* p. 77-80

Environmental sounds are part of music (the sound of motors, trains, horses, thunder).

Identifying Musical Instruments

An orchestra is made up of many musical instruments (strings, woodwinds, percussion, brass).

INSTRUMENTAL MUSIC

* p. 33-39

Musical instruments are an extension of our ability to create music.

Simple Rhythm Instruments

Musical instruments can create environmental sounds, e.g., thunder can be produced on a bass drum.

Musical instruments can be used to play along with songs (accompanying songs).

*TEACHING MUSIC Grades K-4
1978-1979 Curriculum Bulletin No. 5

MUSIC GRADE 2

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

INSTRUMENTAL

* p. 33-36

Pitched and Non-Pitched
Instruments

"Non-pitched" instruments such as the drums, cymbals, triangle and rhythm stocks can be orchestrated to accompany songs and recordings.

Simple melodies can be played on "pitched" musical instruments, such as the xylophone, metalophone, melody bells.
Both "pitched" and "non-pitched" instruments can be combined in one orchestration. (Twinkle, Twinkle Little Star)

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

WHERE THE BODY MOVES

Spatial Awareness

Using general space freely
 Choosing personal space easily
 Knowing inside, outside, around, through, over, under, in front of, at side of, in back of

Direction Awareness

Combining direction with locomotor and manipulative skills

Level Awareness

Combining level changes with manipulative skills using balls, hoops, beanbags
 Differentiating between lower than and higher than--throw ball higher than head and catch it; bounce ball lower than knee and catch it

Pathways Awareness

Traveling along a variety of routes--circle, square, triangle, rectangle, curved, and straight lines
 Varying pathways while bouncing balls

THE BODY AND ITS PARTS

Body Awareness

Knowing right foot, left foot, right hand, left hand, chin, ear, brow, forehead, eyelids, shins, ankles, calves, thighs
 Improving visual and auditory discrimination evidenced by moving body parts in response to written, drawn and verbal symbols; loud and soft, high and low sounds; vocabulary: freeze, stop, go, hop, run; geometric figures: square, circle, triangle, line

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

HOW THE BODY MOVES

Time, Force, Flow

Applying force intentionally to improve jumping, hopping, throwing, and bouncing
Using force and flow intentionally to refine performance: changing pace and direction in locomotor activities; bouncing a ball higher and lower in manipulative activities; swinging arms slowly and quickly in non-locomotor activities

WHAT THE BODY CAN DO

Non-Locomotor Movements

Improving stretching, bending, elevating, pushing, pulling, curling, swinging, swaying, twisting
Becoming aware of possible variations in movement of specific body sections: bending upper part down and sideways; circling arm and leg; raising the lower part while lying down
Developing effective non-locomotor movements in manipulative activities, e.g., raising the lower arms while moving in circle

Locomotor Movements

Combining locomotor and non-locomotor movements fluidly, e.g., catching while running, leaping
Running carrying a ball or small piece of equipment

Manipulative Movements

Improving bouncing, catching, kicking, punching, striking, and rolling large balls
Combining manipulative and locomotor movements
Applying manipulative ability in simple games
Jumping rope with rope turning forward, backward; travel while jumping

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

WHAT THE BODY CAN DO

The Uses of the Parts

Expressing ideas with dramatic intent
 Meeting and separating body parts in executing jumping jacks
 Moving body parts symmetrically; arms raised over head,
 arms raised forward, to side and back
 Moving body parts asymmetrically: One foot forward and one back,
 and change: one arm up, other down, and change
 Improving balance, both static (motionless) and dynamic (in
 motion)
 Using specific divisions of the body to initiate action in
 activities such as forward roll and log roll
 Executing stunts using various parts: reaching for the moon,
 jumping frame, roly poly, tall trees growing

RHYTHMS AND DANCE

Creative and Rhythmic
 Expression

Expressing emotions through movements
 Executing rhythmic and creative expressions freely and
 imaginatively
 Knowing difference between even and uneven rhythms in loco-
 motor movements--gallop, slide and skip as uneven rhythms;
 hop, jump, walk, run as even rhythms
 Creating original movements to recorded music, percussive
 instruments, and other accompaniment

Dance

Performing walk, skip, gallop, hop, slide, tap and stamp in
 various directions to musical accompaniment
 Executing dance patterns: forward and back, promenade, honor
 partner and corner, swing partner, circle four and eight
 hands around, hook swing
 Performing: Circassian Circle, O Susanna, Danish Dance of
 Greeting, Hopp Mor Annika (Skip Annika)

SCIENCE GRADE 2

CONTENT AND TOPIC

SKILLS AND KNOWLEDGE

ANIMALS AND PLANTS IN THE CLASSROOM

*pp: 171-186

Time: 8 weeks

ANIMALS

Animal Pets

There are many kinds of pets.

Needs of Pets

Animals need air, food, water, and shelter.
Some care for themselves; others need help.

Movement of Animals

Animals swim, hop, crawl, run, or fly.

Reproduction

Animals look like their parents.
Some living things undergo many changes before they look
like others of their species.

Survival

Animals protect themselves in many ways.

PLANTS

Needs of Plants

Plants need water, soil, light, the proper temperature, and
space in which to grow.

Plant Parts

Common plants have leaves, stems, roots, and sometimes
flowers.

Structure of a Seed

A seed contains a baby plant.

Growing Plants

Some plants can be grown from parts of a plant.

SCIENCE GRADE 2

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

SUNLIGHT AND SHADOWS

*pp: 187-195

Time: 8 weeks

Sun in the Sky

The sun is the chief source of light.

The sun is very far away.

The sun is always in the sky and appears in different places at different times.

When the sun sets, the sky darkens and night begins.

Shadows in the Sunlight

When something comes between the sun and the earth, it makes a shadow.

The length and direction of a shadow depend upon the position of the sun.

Shadows help to tell time.

MAGNETS

*pp: 196-210

Time: 7 weeks

Using Magnets

There are many different kinds of magnets.

Magnets will pick up objects made of iron.

Strength of Magnets

Some parts of a magnet are stronger than others.

A magnet is strongest at its end.

Magnets can attract through some substances.

How Magnets Affect Other Magnets

When 2 magnets are brought near each other, they pull together or push apart.

A magnet can push or pull another magnet without touching it.

SCIENCE GRADE 2

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

WATER, SOIL, ROCKS, AND AIR

*pp: 211-235

Time: 10 weeks

Water Around Us

Mixing Substances With Water

Soil Around Us

Rocks Around Us

Sand

The Air Around Us

Water takes the shape of its container.

When different substances are mixed with water they may dissolve, sink, or float.

Stirring makes some things dissolve faster in water.
Some substances color water.

Soil is found in many places.

Water and wind can carry soil away.

Moist soil holds together better than dry soil.

Different kinds of soils have different colors.

Soil has living and non-living objects in it.

There are many kinds of rocks.

Rocks are different in size, smoothness, hardness, and luster.

They can be classified according to these properties.

Sand is made of tiny pieces of rock.

Air is all around us and in water and soil.

Air occupies space and has weight

Air takes the shape of its container.

SCIENCE GRADE 2CONTENT AREA AND TOPICSKILLS AND KNOWLEDGEMOVING IN THE AIR

*pp: 236-243

Time: 7 weeks

Flying Along

Wind is moving air.

Wind carries many things.

Some things fly high; some fly low.

A parachute slows the fall of an object that hangs from it.

Engines can move something through the air.

Rockets and jets move in the opposite direction from that
of the escaping gases.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Review and reinforce first grade learnings to meet individual and class needs.

HOW DO PEOPLE LIVE AND WORK IN AND AROUND N.Y.C.?

There are many reasons why so many people live and work in N.Y.C.

N.Y.C. consists of neighborhoods, communities, and boroughs. Suburbs are areas outside of the five boroughs.

N.Y.C. is part of the greater metropolitan area, which includes parts of N.J. and Conn.

N.Y.C. has many places of public interest.

New Yorkers are governed by laws and elected leaders.

Case Study Outline: City Services

Identification

Location in N.Y.C.

World Origins - Geography

Historical Background

Family Life

Securing Basic Family Needs

Culture

Religion

Education

Arts

Language and Literature

WHO ARE THE PEOPLE WITHIN N.Y.C.?

A case study (studies) of various ethnic groups (Include those representative of school community.)

HOW DO PEOPLE LIVE AND WORK IN AND AROUND ANOTHER LARGE CITY IN THE U.S.?

A case study of another city, e.g., Philadelphia, comparing similarities with and differences from New York.

CONTENT AREA AND TOPICSKILLS AND KNOWLEDGEHOW ARE PEOPLE BROUGHT CLOSER TOGETHER
THROUGH GROUP COMMUNICATION?

People communicate by oral language, sign and written language. Some special ways of communicating are the calendar, clock, thermometer, ruler. Inventions that improve and speed communications are telephone, telegraph, television, radio, magazine, newspaper. N.Y.C. is a great center of communication.

HOW ARE PEOPLE BROUGHT CLOSER TOGETHER
THROUGH TRANSPORTATION?

People need transportation to forward and transport goods. Science has invented ways to help us travel and send goods further, faster and more cheaply than before. Transportation has helped to make New York a great city.

HOW DO PEOPLE OBSERVE SPECIAL
DAYS AND CUSTOMS?

People in the U.S. celebrate national holidays such as: July 4, birthdays of George Washington and Abraham Lincoln. People in other countries also celebrate national holidays such as Bastille Day.

CURRENT AFFAIRS

Current affairs are studied to see how they affect children's lives and to assist in developing civic responsibility.

WORK STUDY SKILLS

Experience charts and outlines are developed together. Reports are made on topics; using various sources of information: books, newspapers, magazines, television, filmstrips. People are interviewed for information. Fact and opinion are differentiated. Technical terms are added to vocabulary.

CHILDREN'S NEEDS

Basic needs, the same for all children, are the drives that influence behavior. These needs include:

1. NEED TO BE VALUED

A child's self-image has top priority. A child can't be "somebody" unless the child is "somebody" to someone else. Self-image must be reflected in the eyes and actions of those the child loves and values. All children must be valued for who they are, where they come from, and what they bring with them from their culture, language, desires, and expectations.

2. NEED TO DO

Children learn by using all their senses to explore, discover, and form judgments about the things in their world.

3. NEED TO SHARE WITH PEOPLE THEY TRUST AND BE TRUSTED TO SHARE

Children need adults who care, who can guide the children's discovery into mutually respected action, who inspire and develop competence and confidence.

4. NEED TO BE GIVEN A CHANCE TO GROW AT HIS OR HER RATE IN HIS OR HER OWN WAY

Growth for children has many dimensions - social, emotional, physical, and intellectual. Growth is uneven and highly individual. All children do not reach the same level of growth at the same age, nor does a child grow in the same way in all areas.

PRINCIPLES OF GROWTH & DEVELOPMENT

Basic principles that enable persons to guide children with a degree of assurance include:

1. DIFFERENTIATION

Development proceeds from simple to complex. In both structure and activity, development is gradual in the direction of complexity and variety. Differentiated structures and functions become organized in new and more inclusive patterns.

2. DISCONTINUITY OF GROWTH RATE

Development is never uniform or all at the same time. Various parts and systems grow at various rates at a different time. Growth shows characteristic spurts or peaks and then slows down to periods of relative latency.

3. INTERRELATEDNESS OF GROWTH

Every aspect of the child's life affects every other aspect. The physical and social environment as well as factors of personality and physical development affect academic achievement.

4. DIVERSITY OF GROWTH

No two children are exactly alike. No two grow quite alike. Wide differences exist among children of the same age, the same family, and from the same community. Each child has his or her unique growth style.

OVERVIEW: Generally includes children eight to ten years of age. Physical growth is slow and steady but social relationships and awareness of self and others are heightened. Feelings of adequacy affected by child's overall experiences in the physical, intellectual, and social spheres.

PHYSICAL	SOCIO-EMOTIONAL	INTELLECTUAL
<u>Eight-Year-Old</u> • Growth is still slow and steady; (arms lengthening, hands growing larger). Permanent teeth are replacing "baby teeth." • Eyes are ready for both near and far vision; (near-sightedness may develop this year). • Interest grows in games requiring coordination of small muscles (hitting moving target, shooting marbles, catching with one hand, etc.). • Ability to write is progressing; however, fine muscle work may still be difficult and taxing.	<u>Eight-Year-Old</u> • Prefers to work and play with others; begins to identify with group responsibilities and purposes; accepts simple rules and directions. Begins to exhibit a feeling of competition. • Is becoming more selective in choice of friends. Responds to peers in activities, dress, and ideas. • Shows allegiance to peer group rather than to the adult where there is conflict. • Is usually alert, friendly, and interested in people. He/she is often careless, noisy, and argumentative, (but not in an angry manner). • Is eager and enthusiastic about many tasks. Often tries to express ideas and to take part in activities which are beyond his or her capacity; shows more self-confidence.	<u>Eight-Year-Old</u> • Establishes own methods of employing fundamental skills in language arts and mathematics. • Is beginning to develop a broader understanding of space and time. • Is becoming more adept at defining problems and developing logical patterns of problem-solving. Is more capable of critical judgment. Weighs facts, attempts an adequate appraisal of them, and shows ability to utilize them. • Exhibits ability to distinguish fact from fiction. • Has greater capacity to accept criticism and to evaluate self-effectiveness. • Exhibits great curiosity and interest in immediate surroundings and the world: material and social.

PHYSICAL	SOCIO-EMOTIONAL	INTELLECTUAL
	<u>Eight-Year-Old (Cont.)</u> . Has growing awareness of self and others. . In school life he/she is more socially oriented than academic.	
<u>Nine-Year-Old</u> . Slow, steady growth continues; displays even rate of growth in height and increase in weight. Girls forge further ahead; some children reach the plateau preceding growth spurt of pre-adolescence. . Exhibits increased skill in the use of fine muscles; continues to need activities to develop large muscles. Is proficient in the use of tools, as is evident in the details of his or her finished products. . Lungs, digestive and circulatory systems are almost mature. The heart especially is subject to strain. Teeth may need straightening; first and second bicuspid are appearing.	<u>Nine-Year-Old</u> . Group and club enthusiasm is noticeable, with hostility toward other groups; clubs and exclusion from clubs are both short-lived. . Is becoming aware of responsibility to others. Exhibits increased ability to evaluate self and others. Much arguing over fairness in games. . Has an emotional and intellectual interest in punishments, privileges, rules and procedures, particularly at school and in club life. . Is capable of devoting relatively long periods of time to a given task. Attacks a problem and keeps right on working at it. A nine-year-old feels he must answer to self as well as to others.	<u>Nine-Year-Old</u> . Has made definite growth in ability to do some independent critical thinking. . Interested in perfecting skills; will do the same task over and over again. . Is interested in the mechanics of things; what things are made of and how they operate. Tends to be more exacting in collecting, identifying, and classifying objects. . Interest in special fields increases - (science, the arts, literature, sports, etc.). May limit activities to one area.

PHYSICAL	SOCIO-EMOTIONAL	INTELLECTUAL
<u>Nine-Year-Old (Cont.)</u> • Eyes are almost adult size; ready for near work with less strain. Exhibits ability to adjust eyes for both near and far vision without undue strain. Eye-hand coordination is good; hands are capable of crafts and shop work. • Displays increased skill in motor coordination. Enjoys exhibiting motor skills. Often works and plays to peak of capacity.	<u>Nine-Year-Old (Cont.)</u> • Is capable of more independence when away from family. Is aware of differences between standards of family and friends. • Decisive, responsible, dependable, reasonable, strong sense of right and wrong. Much time spent in talk and discussion; often outspoken and critical of adults; shows more inner control of behavior.	<u>Nine-Year-Old (Cont.)</u> • Likes to make plans and looks ahead; is increasing in ability to budget time. • Develops interests in a wider variety of areas involving the media-comedians, news broadcasters, drama in general; interest in fantasy declines.
<u>Ten-Year-Old</u> • Girls are more mature physically than boys their own age. • Awkwardness and restlessness are common as a result of rapid and uneven growth.	<u>Ten-Year-Old</u> • Is generally easygoing; cries very seldom, but anger may be immediate and violent. • Has a real sense of humor and a love of something funny. Tries to be humorous. Leans toward practical jokes and punning.	<u>Ten-Year-Old</u> • Establishes own methods of employing fundamental skills. • Is beginning to develop a broader understanding of space and time. • Is able to discuss problems, to see different sides of questions. • Exercises greater objectivity in judgment.

PHYSICAL

Ten-Year-Old (Cont.)

- . Secondary sex characteristics begin to develop.
- . Approximately half the permanent teeth are developed
- . Stabilization occurs in the fine motor area.

SOCIO-EMOTIONAL

Ten-Year-Old (Cont.)

- . Has a fairly critical sense of justice; is cognizant of partialities, and frequently surprises all with the judiciousness of observations.
- . Is open to ideas of social justice and social welfare.
- . Is capable of loyalties and of idol worship, and can inspire same in schoolmates without question.

May believe one hundred percent in what has just been heard on a radio program or seen on television.

- . Is moved one moment by a desire for the comfort of belonging, and the next by a strong urge for competition. A desire to show off and receive acclaim in the eyes of peers prompts much classroom competition and vociferous criticism of others. Much of learning comes from association with peers. Is eager for group approval and belonging.
- . More accepting of self and others.

INTELLECTUAL

Ten-Year-Old (Cont.)

- . Interested in other people's ideas.
- . Insights may be more mature.
- . May have greater capacity to accept criticism and to evaluate self.

WORK STUDY SKILLS GRADES 3-5
ALL SUBJECT AREAS

-169-

Students acquire skills through using them consistently in assignments relating to the curriculum in each subject area. For skills which require use of library resources, librarians cooperate with classroom teachers on how specific skills may be applied to topics teachers plan to teach.

FOLLOWING DIRECTIONS

Independently following printed/oral directions (involving 3 or more steps) in practice materials, homework assignments

Using pattern for following written directions:

- Reading title
- Reading for overview
- Rereading for specific steps
- Carrying out steps
- Checking for correct completion of steps

LOCATING INFORMATION

Using print and other media and resource persons as sources of information*

Scan for specific information; Skim for overview or superficial review

Selecting key words for topical information; interpreting research questions

Using classroom and school libraries
locating information appropriate for level

Using reference sources*
(Alphabetizing to second letter; third letter)

- Dictionary
- Encyclopedia
- Almanac
- Atlas
- Telephone Directory

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* Librarians will help determine which sources are most appropriate for the kind of information wanted.

Using format in print materials
 Table of Contents
 Copyright date
 Glossary
 Indices
 Chapter, topic and subtopic heads
 Bibliography

SELECTING, RECALLING,
 EVALUATING INFORMATION

Using more complex criteria for selecting best oral/written response

Reinforcing and extending recall of information presented by speakers
 and other-than-print media

Reinforcing and extending recall of information from short printed
 selections

Reinforcing and extending skill in selecting or integrating relevant
 information from more than one print source

Reinforcing and extending skill in integrating information on the same
 topic from sources in more than one media

Verifying information through investigation

ORGANIZING INFORMATION

Classifying information by contrasting characteristics, e.g., industrial
 or agricultural, urban or rural, acid or base

Determining categories for classifying a variety of information

Classifying by sequence, chronology, cause and effect, or pattern

Analyzing and synthesizing data collected by scientists' tools

Keeping records of investigations as a basis for inferring conclusions

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Organizing information in chart and graph forms

Taking notes from oral/print and other media sources

Arranging and/or presenting material according to given format

Using outline technique in writing simple summaries

Main categories: I.

II.

III.

Main categories and first level subcategories: I.

A.

B.

Awareness of need to quote exact words of printed or spoken material

Preparation of limited bibliography for assigned reports

USING GRAPHIC REPRESENTATION
AND INVESTIGATIVE TOOLS

Recognizing that maps show relationships, e.g., political boundaries, elevations, places, numbers of people or things

Locating points on printed and hand drawn-maps

Awareness of map scale; estimating distance

Awareness of various kinds of maps, e.g., physical-political, products, climate, outer space, polar projection, population

Using latitude and longitude, parallel and meridian for locating places; understanding need for demarcation of time zones and identifying time zones

Making and interpreting bar, line, pie graphs, and pictographs

Manipulating equipment in the investigation of a problem or in the examination of things beyond human capacity, e.g., microscope

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Grade 3

MINIMUM TEACHING ESSENTIALS

Art	174
Health Education	180
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Mathematics	184
Music	188
Physical Education	189
Science	192
Social Studies	195

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

DRAWING

*pp: 50-51

Time: 6-9 Weeks

Drawings Based on
Experience and Environment

Drawings Based on
Fantasy and Imagination

Drawings Based on Stories
or Books

Crayons, craypas, chalks, felt-tip pens, and pencils are used on paper of various sizes, shapes, textures, and weights.

Animals, people, buildings, and vegetation are drawn the 'way they look.'

Figures move off the base line, giving a greater sense of space and distance.

Background is drawn to indicate setting for figures.

Light and dark colors are used to produce objects and moods with greater contrast.

The teacher takes an active part in stimulating children's ideas.

Children are guided to look at their own drawings critically in order to encourage them to extend their ideas and efforts.

*ART IN THE ELEMENTARY SCHOOLS, Grades K-6: Board of Education Curriculum Bulletin, No. 8

**DESIGN ACTIVITIES FOR THE CLASSROOM, John Lidstone, Davis Publications, Massachusetts, 1977

CONTENT AREA AND TOPICSKILLS AND KNOWLEDGEPAINTING

*pp: 37-39

Time: 6-9 Weeks

Tempera Painting

Design Painting

Paintings Based on Experience

A variety of wide and narrow brushes can be used on 19"x22" newsprint, colored construction paper, and Kraft paper.

Different lines, shapes, and textures are experimented with in designing paintings.

Pictures are painted with story content and demonstrate greater ability to represent the shapes of familiar objects.

Paintings are "completed" by painting in the background.

MODELING WITH CLAY

*pp: 68-69

Time: 4-6 Weeks

People, Animals, Monsters, and Other Forms

Pinch Pots

Clay is wedged so that it will not explode in the kiln.

Three-dimensional figures are created by pinching and modeling them into shape.

Forms are hollowed out to permit drying.

Details are "welded" on, cracks are smoothed out, and surfaces are textured with the use of tools.

A ball of clay is hollowed and worked into a pleasing shape.

Strong edges and interesting surface decorations are created.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

DESIGNING WITH PAPER

*pp: 92-93
Time: 3-5 Weeks
Paper Masks

Children experiment by cutting, folding, scoring, and pasting multicolored papers to create a design.

Heavy paper is used as a base for paper masks. The paper is scored, cut, and folded to make it fit face or head.

Paper designing skills are used to decorate masks and make them more expressive.

Craypas or paint is used to add color emphasis. Feathers and yarn can be used to add interest.

POSTER-MAKING AND LETTERING

*pp: 78-79
Time: 4-6 Weeks
The Picture and the Message

Posters must convey a message clearly and quickly. Posters combine a simple picture with a short message.

Pictures are drawn and colored. Pictures are cut out.

Words are painted on a strip of paper. (See grade 2.) Words and pictures are combined on a background. Awareness of the eye-catching quality of bright colors is developed.

PRINTMAKING

*pp: 63-67
Time: 3-5 Weeks
Monoprints

Transferring a painting from one surface to another surface is a process in printmaking.

Printmaking provides an opportunity to experiment with paints and make a permanent print of the final version.

CONTENT AREA AND TOPICPRINTMAKING (continued)PUPPETS AND PUPPETRY

*pp: 134-136

Time: 3-5 Weeks

Sock Puppets

Dialogue for Puppets

SKILLS AND KNOWLEDGE

Tempera paint and soap-or water-soluble printing ink are applied to a piece of rigid plastic. Details are added by removing or scratching away some of the paint with a pointed tool. Before the paint or ink dries, it is carefully covered with a sheet of newsprint. When the newsprint is lifted off the paint, a transfer painting or "print" has been created.

Simple original puppets are designed from socks which are stuffed. A cardboard or paper tube is used to form a hollow neck for the puppet. Costumes are made from fabric which is sewn to the sock. Openings in the fabric permit children's fingers to serve as puppet "hands." Fabrics and trimmings are used to create very visible facial features or exaggerated creature appendages. Contrasting colored materials are selected to create visibility and mood.

Puppetry stimulates verbal and written expression. Dialogue is created for improvised and planned performances.

A simple stage is devised (cardboard box, a table) behind which the children can hide as their puppets perform.

Children address themselves to an audience and use sound effects.

CONTENT AREA AND TOPIC

CONSTRUCTING WITH WOOD
AND OTHER MATERIALS

*pp: 124-125

Time: 2-4 Weeks

Non-objective Constructions

Representative Constructions
Such as Vehicles, Bridges,
Rockets, and Buildings

Toys

FABRICS AND FIBERS

*pp: 100-106

Time: 4-6 Weeks

Fabric Collage

SKILLS AND KNOWLEDGE

Constructions are made from wood pieces, styrofoam, cardboard, and other found objects.

The shapes, sizes, and textures of different materials help to suggest ideas as projects are planned.

Constructions can grow upward as well as grow outward in flat arrangements.

The concept of unity in design is evoked as various shapes are combined in one balanced construction.

Pieces are carefully attached to each other by applying a thin layer of a glue to the sides to be joined.

Constructions can be decorated with paint, trimmings, colored paper or left plain.

Collages are pre-planned.

Fabrics and trimmings are selected, cut, and arranged on a cardboard base.

Materials are attached with glue.

The decorative qualities of textured and patterned materials are discovered.

Trimmings are used as accents.

Materials are handled with greater skill.

(See grade 2)

CONTENT AREA AND TOPICSKILLS AND KNOWLEDGEFABRIC AND FIBERS (continued)

Experimental Stitchery

Stitches are invented as children experiment with needles and yarn on burlap.

Teacher demonstrates how a "satin" stitch fills in areas, and how "couching" helps make important lines.

Burlap Pictures

A picture is drawn on burlap with a felt-tip pen. Stitches are devised to "color" the picture with yarn.

Over-and-under stitches and running stitches are also used. (See Grade 2.)

Dixie Mesh Weaving

Drawings are transferred to dixie mesh with a felt-tip pen.

Pictures are "colored" by weaving yarn through the dixie mesh.

Skill in handling needles and yarn is increased as children become more familiar with the "over-and-under" process of weaving.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

CLEANLINESS AND HEALTH PROTECTION

*pp. 91-94

Germs are found in the air, in drinking water, in food, and on the human body.
An infectious disease is one that can spread to someone else. There are many ways of avoiding infectious disease. Sometimes it is necessary to have medical assistance to help fight germs in the body.
Good health habits are an important way of keeping the body well.

NUTRITION

*pp. 97-99

A balanced diet consists of a variety of foods. Foods are divided into four major groupings: milk and dairy products; meat and fish; fruits and vegetables; bread and cereals.
Other countries and peoples vary in their foods and eating habits.

DENTAL HEALTH

*pp. 99-104

One's total appearance can be improved by healthy teeth. Teeth aid in the digestion of food.
Having two sets of teeth is part of an individual's normal growth pattern; the first set is called the temporary teeth and the second set is called the permanent teeth. Proper care of the teeth is necessary at all times.
A well-balanced diet will help keep the teeth strong and healthy.

MENTAL HEALTH

*pp. 104-107

Also see FAMILY LIVING INCLUDING
SEX EDUCATION

It is important to make and keep friends.
People like to express their own ideas and opinions without being embarrassed or humiliated.

* HEALTH EDUCATION IN ELEMENTARY SCHOOLS Board of Education Curriculum Bulletin No. 2

CONTENT AREA AND TOPICSKILLS AND KNOWLEDGEMENTAL HEALTH (cont.)

Leisure-time activities are an important part of good mental health.

Everyone should accept responsibility for getting things done. Everyone at some time meets success and failure.

EYES AND THEIR CARE

*pp. 107-111

To preserve eyesight, take proper care of the eyes.

The eyes have some means of protecting themselves.

All children should have their vision tested once a year.

When glasses are prescribed, they should be worn.

EARS AND THEIR CARE

*pp. 115-117

Sound waves are a means of transmitting signals from one place to another.

Hearing is a means of becoming aware of danger.

Knowledge of the world around us is promoted through hearing.

SAFETY AND FIRST AID

*pp. 115-117

A major cause of accidents is carelessness with regard to matches and fire.

On public transportation, good manners will help to develop good safety habits.

Children should not accept automobile rides from strangers.

In case of an accident, call the police, a doctor, or another adult for help. An injured person should be kept comfortable; get medical assistance as soon as possible.

EXERCISE, REST, AND SLEEP

*pp. 118-121

Proper exercise is important to keep the body in good condition.

Good posture is important and can be improved by exercise.

Proper sleep and rest help the body in many ways.

LIBRARY MEDIA GRADE 3

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

ORIENTATION TO THE LIBRARY MEDIA CENTER

Tours, floor plans and printed signs describe the Library Media Center layout.
Charts and diagrams describe the use of Library Media Center equipment and resources.

ORGANIZATION OF LIBRARY MEDIA CENTER

Books and audiovisual resources in the Library Media Center are arranged by subject classification system(s).
The Dewey Decimal classification system divides knowledge into subject categories.
The Dewey Decimal classification system includes categories for fiction and non-fiction.
Specific resources are located by using subject, author and title entries in the card catalog.

USE OF LIBRARY MEDIA RESOURCES

A table of contents lists, in broad categories, information found in the book's chapters and gives page references to those chapters.
Indices are used to locate specific information in the body of non-fiction books.

CONTENT AREA AND TOPICSKILLS AND KNOWLEDGEUSE OF LIBRARY MEDIA RESOURCES

Publication date and/or copyright date on the title page or verso tell approximately when material was published and/or written or revised.

Guide words are used to pinpoint sub-topics of entries in encyclopedias and dictionaries.

Abridged dictionaries are used to find the definition of words.

Abridged dictionaries are used to find pronunciation of words.

Encyclopedias are used to locate brief facts on a subject.

Guide words, tables of contents and indices are used to locate specific information in reference and other non-fiction books.

Browsing involves the selection of material through the use of textual clues and the blurb.

Information is obtained by browsing in reference materials.

8mm film loop machines and sound filmstrip viewers are operated independently.

Records are used independently to acquire information.

Characteristics of specific media determine appropriateness for specific use; e.g., 8mm filmloop may be re-reviewed without rewinding; total page of a book may be viewed at one time.

INTERPRETATION OF LIBRARY MEDIA RESOURCES

Realistic fiction of family and school life provides insight into individual problems; e.g., security, courage, and social relationships; relationships among generations, racial ethnicity, and religious diversity.

Realistic fiction of the natural world explores the characteristics of non-human beings compared to other forms of life.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

NUMBER; NUMERATION

*pp. 6, 37, 60, 127

Counting by twos, threes, fours, fives, tens
 Counting by hundreds to 10 hundreds or 1 thousand
 Grouping by tens; by hundreds; by hundreds, tens, and ones
 Comparing and ordering two-digit numbers; three-digit numbers
 Reading and writing two-digit and three-digit numerals in
 expanded form
 Place value concepts through 999
 Rounding numbers to the nearest ten; to the nearest hundred

ADDITION OF WHOLE NUMBERS

*pp. 15, 41, 57, 62, 64,
 66, 151

Basic facts: sums through 18
 Algorithm for computing sums of two addends, sums less than
 100 with exchange (ones for tens)
 Adding ten and multiples of ten to numbers through 99

$$\begin{array}{r} 85 \\ +50 \\ \hline \end{array}$$

Algorithm for computing sums of hundreds and multiples of
 hundreds

$$\begin{array}{r} 300 \\ +200 \\ \hline \end{array} \text{ and/or } 300 + 200 = \square$$

Algorithm for computing sums of two addends, named by three-
 digit numerals with one exchange (ones for tens)

Algorithm for computing sums of more than two addends without
 and with exchange

$$\begin{array}{r} 54 \\ 23 \\ +36 \\ \hline \end{array}$$

MATHEMATICS GRADE 3

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

SUBTRACTION OF WHOLE NUMBERS

*pp. 19, 44, 62, 64, 66

Basic facts: sums through 18

Concept of inverse operations

Algorithm for computing differences of two-place numbers with exchange (1 ten for 10 ones)

Algorithm for computing differences of hundreds and multiples of hundreds

600

-200

Algorithm for computing differences of three-place numbers without exchange; with exchange (1 ten for 10 ones)

MULTIPLICATION OF WHOLE NUMBERS

*pp. 23, 46, 77, 99,
114, 120, 133

Concept of multiplication

Basic facts: twos through 9 twos, threes through 9 threes, fours through 9 fours, fives through 9 fives, sixes through 9 sixes, sevens through 9 sevens, eights through 9 eights, nines through 9 nines

Use of commutative property of multiplication

Multiplying when one factor is 10 and the other is less than 10

DIVISION OF WHOLE NUMBERS

*pp. 25, 47, 80, 103, 116,
123, 135

Concept of division and multiplication as inverse operations

Basic facts: twos through the number of twos in 18, threes through the number of threes in 27, fours through the number of fours in 36, fives through the number of fives in 45, sixes through the number of sixes in 54, sevens through the number of sevens in 63, eights through the number of eights in 72, nines through the number of nines in 81

Concept of remainder in division

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

FRACTIONAL NUMBERS

*pp. 30, 81, 105

Concepts of halves, fourths, eighths of a whole
 Concepts of thirds and sixths of a whole
 Symbol for fractional numbers, $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$, $\frac{1}{3}$, $\frac{1}{6}$

Equivalent fractions $\frac{1}{2} = \frac{2}{4}$ $\frac{4}{8} = \frac{1}{2}$

Expressing a fractional number as a whole number
 $\frac{2}{2} = 1$ $\frac{3}{3} = 1$

Expressing a fractional number as a whole number and a fraction (mixed numeral) $\frac{4}{3} = 1 \frac{1}{3}$ $\frac{3}{2} = 1 \frac{1}{2}$

Compare halves, fourths and eighths
 Compare thirds and sixths

MEASUREMENT

*pp. 109, 32, 129, 22,
 28, 87, 138

Linear:

Non-standard units of length
 Standard units of length (meter, centimeter; foot, inch, yard)

Weight:

Non-standard units of weight
 Standard units of weight (kilogram, gram; pound, ounce)

Capacity:

Non-standard units of capacity
 Standard units of capacity (liter; cup, pint, quart)

Time:

Calendar—relationships among day, week, month, year
 Clock—telling time to the hour, half-hour, quarter-hour.
 Concept of minute
 Relationship between minute and hour
 Concept of after the hour; before the hour

Money:

Value relationships among penny, nickel, dime, quarter, half-dollar, and dollar

MATHEMATICS GRADE 3

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Temperature:

Concept of temperature as the measure of heat
Measurement of temperature, using Celsius and Fahrenheit
thermometers

Standard units for measuring temperature: degree, °C
and degree, °F

GEOMETRY

*pp. 95, 170

Concept of polygon

Some properties of polygons (triangle, square, rectangle)

Recognition of symmetrical patterns

GRAPHS; PROBLEM SOLVING;

PROBABILITY

*pp. 9, 13, 49, 125

Collecting and organizing data

Constructing, reading and discussing bar graphs

Answering questions by reading and interpreting the graphs

Creating verbal problems related to bar graphs and charts

Determining the number operation for solving problems

Translating verbal problems into number sentences

MUSIC GRADE 3

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

RHYTHM

Reading Rhythm Notation

Rhythm notation is written through the use of meter signatures (4/4, 3/4, 2/4); bar lines and measures.

The meter signature conveys rhythm information important to the music, e.g., the top number of the meter signature denotes the number of beats in each measure.

Tempo markings are the composer's way of conveying the speed of music, e.g., Allegro-fast, Lento-slow.

SINGING

*p. 67-70

A song is a medium for many musical learnings.

Vocal Techniques

Attention to vocal techniques will lead to quality singing. Some early vocal techniques are: breath support, diction and long sustained tones.

Folk songs can be added to the repertoire of songs.

LISTENING

* p. 77-82

The listening experience is enhanced by specific listening direction, e.g., awareness of voice qualities, different musical instrument qualities, timbres, textures and style.

Direct Listening

CREATIVE EXPERIENCES

Sound Scores

Sounds around us can be scored through pictures.

Accompaniment

The dramatic effect of poetry and stories can be heightened by improvised rhythm instrumental accompaniment.

MUSIC READING

* p. 89

331 Hand Signals

The Kodaly hand signals, which denote pitch, help children to "feel" pitch.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

WHERE THE BODY MOVES

Spatial Awareness

Appreciating the need for space, both personal and general, for efficient movement
Using space readily in games and locomotor activities

Direction Awareness

Knowing direction--to the right, to the left, on the diagonal
Combining direction readily with manipulative skills
Combining direction with faster locomotor tasks

Level Awareness

Knowing and using varied level differences in games and manipulative movements

Awareness of Pathways

Understanding and moving in direct and indirect routes
Knowing the difference between circular, angular and straight pathways

THE BODY AND ITS PARTS

Body Awareness

Knowing specific body parts and major divisions of the body
Isolating specific body parts in the performance of skills
Developing fine motor control

HOW THE BODY MOVES

Time, Force, Flow

Using of force and flow in the refinement of skills
Beginning to understand the force needed to achieve desired results in a game or stunt
Performing light bounces, high water, low water, gentle rolls, high, strong throws

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

WHAT THE BODY CAN DO

Non-Locomotor Movements

Applying specific non-locomotor movements to manipulative activities--bending forward to bounce a ball; bending down to pick up an object
Performing games and stunts involving non-locomotor movements

Locomotor Movements

Combining locomotor activities with manipulative movements in using equipment--running while bouncing a ball; jumping while turning a rope
Using locomotor activities readily in games with and without equipment
Combining specific locomotor movements--running and jumping, leaping, hopping
Executing forward rolls, backward rolls, series of forward rolls with improved coordination

Manipulative Movements

Throwing and bouncing large or small balls with one or two hands
Combining ball bouncing with running, skipping, galloping
Catching a thrown ball while running
Kicking a ball resting on the ground
Moving ball along the ground with feet
Throwing and catching hoops, rings (quoits) and bowling pins
Jumping rope on one foot, alternating feet with the rope turning forward or backward
Jumping rope with both feet crossed

Uses of the Parts

Executing bicycle, caterpillar walk, hop scotch, the top
Beginning to control specific body parts in a handstand and arabesque (balance)

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

RHYTHMS AND DANCE

Creative and Rhythmic
Expression

Performing locomotor and manipulative skills more rhythmically
Running, bouncing ball, jumping rope using one's own rhythm--
to or without music

Performing creatively and showing originality in manipulating
small equipment

Combining locomotor steps to form patterned sequences--run,
run-hop; heel-and-toe and step, step, step

Dance

Performing Cashebogor, Virginia Reel, Bleking and Alley Cat

SCIENCE GRADE 3

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

ELECTRICITY IN EVERYDAY LIFE

*pp: 27-40

Time: 5 weeks

Electricity Around Us

Electricity does many jobs for us.

Electricity gives us light, sound, heat, and motion.

Electricity Travels in a
Circuit

A dry cell is a source of electricity.

A switch will open or close a circuit.

Metals conduct electricity; non-metals do not.

Poor conductors can be used as insulators.

THE EARTH AND THE SUN

*pp: 41-53

Time: 6 weeks

Night and Day

The earth is round and it rotates every 24 hours causing
night and day.

In one year the earth moves around the sun.

Telling Time

The earth's steady turning makes it a clock.

Clocks and watches are run by various methods.

Today's clocks are more accurate than those of the past.

THE NEEDS OF PLANTS
AND ANIMALS

*pp: 54-74

Time: 6 weeks

Needs of Plants

Green plants need light, water, air, proper soil, and correct
temperature to grow.

*SCIENCE - GRADE 3-4, #11 - 66-67 Series

SCIENCE GRADE 3

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Needs of Animals

The amounts they need vary.
Each part of the plant helps it to live and grow.
All animals need food, water, air, and shelter.
Each kind of animal feeds, moves, and protects itself in its own way.

HOW SOUNDS ARE MADE

*pp: 75-90

Time: 5 weeks

Sound and Vibrations

Musical sounds are made by plucking, striking, blowing, and rubbing.
Sound is produced only when something vibrates.

OBSERVING AND MEASURING

WEATHER CHANGES

*pp: 91-114

Time: 7 weeks

Temperature

Temperature changes from day to day and is measured in degrees with a thermometer.

The liquid in the thermometer expands when it is warm and contracts when it is cool.

Wind Direction

Wind direction may be detected by observing smoke, trees, flags, and clothes on a line.

Wind direction is measured with a wind vane and is named in the direction from which it blows.

Wind speed is measured with an anemometer.

SCIENCE GRADE 3

CONTENT AREA AND TOPIC

Rain, Snow, and Water Vapor

FRICTION, GRAVITY AND MOTION

*pp: 115-133

Time: 6 weeks

Friction Affects Motion

Gravity Affects Motion

ROCKS AND HOW WE USE THEM

*pp: 134-154

Time: 5 weeks

Rocks We Use

SKILLS AND KNOWLEDGE

Rainfall may be measured by collecting rain in a jar.

Snowfall is measured with a ruler.

Air contains invisible water vapor that evaporates into the air from wet surfaces.

Humidity changes from day to day.

When surfaces rub against each other, there is friction between them.

Friction is decreased by using lubricants, rollers, wheels, and bearings.

Friction is increased by making surfaces rougher.

Sometimes friction helps us.

Going up means going away from the center of the earth, and going down is toward the center of the earth.

The earth's gravity exerts a pull on all objects and will slow up objects going up and increase the speed of objects going down.

Natural and synthetic rocks are used for buildings because of their properties.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

HOW DO WE LIVE AND WORK IN AND AROUND NEW YORK CITY?

Review and reinforcement of grade 2 learnings to meet individual and class needs.

HOW DO PEOPLE IN A COASTAL REGION USE THEIR RESOURCES AND GEOGRAPHY?

Time: 8 weeks

Case study: Tri-State Area and New York City

Geographic Features

Location
Natural environment
Population distribution

Historical Development

Significant trends past to present
Important leaders
Current changes

Government

Local government
State government

The tri-state area around New York City is a center of world trade because of its geographic features: fine harbors, easy access to inland regions, and rich natural resources, e.g., fishing, farming, furs, and human resources.

Italian, Dutch and English explorers came to this area for economic reasons.
Native Americans, Dutch and English made settlements. The settlements grew into large colonies.
Cities grew because of the ease of transportation on the rivers, the fine harbors, and abundant natural resources.
New York City and the tri-state area are faced with many urban problems: e.g. crime, poverty, finance.

Major differences between local and state governments exist.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Economic Practices and Chief Occupations of the People

Meeting needs for food, clothing and shelter
Producing goods and services for wants

Many people work in the region and provide us with goods and services.

Major occupations include skilled and semi-skilled jobs in manufacturing, finance, trade, communications and transportation.

Social and Cultural Life in the Region

Languages
Customs and traditions
Religions

Many people take advantage of the cultural facilities of the region: museums, theater, opera, art galleries, ballet, parks, zoos.

The region reflects the cultures of many diverse ethnic groups.

Major Problems of the Region

Current problems include fiscal and budgetary difficulties, pollution, housing, crime, health and education.

HOW DO PEOPLE IN OTHER REGIONS USE THEIR RESOURCES AND GEOGRAPHY?

The characteristics of a particular geographic region of the United States are studied with emphasis on the similarities and differences among cities and their regions.

Time: 30 weeks

Required: Case Studies
of Five Geographic
Regions

HOW DO PEOPLE LIVE IN A DESERT REGION OF THE U.S.?

The American desert and the city of Phoenix

The ways in which men respond to natural conditions, and develop cultural resources are studied.

The geography of a region affects the people's lifestyle, economy and cultural activities.

See sample case study: Tri-State Area and New York City.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

HOW DO PEOPLE LIVE IN A MOUNTAIN
REGION OF THE U.S.?

The Rocky Mountains and Boulder,
Colorado

See sample case study: Tri-State Area and New York City.

HOW DO PEOPLE LIVE IN A GRASSLANDS
REGION OF THE U.S.?

The Great Plains and Kansas City

See sample case study: Tri-State Area and New York City.

HOW DO PEOPLE LIVE IN A TROPICAL AREA?

Puerto Rico and San Juan

See sample case study: Tri-State Area and New York City.

HOW DO PEOPLE LIVE IN A FOREST REGION OF
THE U.S.?

Northern Rain Forest and Seattle

See sample case study: Tri-State Area and New York City.

CURRENT AFFAIRS

Current affairs are studied to see how they affect children's
lives and to assist in developing civic responsibility.

WORK STUDY SKILLS

Glossary and index are used to locate information.
Multi-media resources are used, e.g., films, records, cassettes,
pictures.

A simple paragraph is written as a means of reporting.
Relative terms of direction (northeast, southwest) are used.
Cardinal directions are identified.
Simple estimations of time and distance are made.
Distinctions between land and water are made on maps.
Title, key, and directional sign on a map are used.
Different routes to the same point are found on maps.

Grade 4

MINIMUM TEACHING ESSENTIALS

Art	199
Health Education	205
Library Media	208
Mathematics	210
Music	215
Physical Education	216
Science	219
Social Studies	223

CONTENT AREA AND TOPICSKILLS AND KNOWLEDGEDRAWING

*pp: 52-53

Time: 6-9 Weeks

Experimental Drawings

Drawings Based on
Experience and
Make-believeDrawings Based on
Subject Matter from
Other Curriculum Areas

Crayons, craypas, felt-tip pens, chalk, pencils, thin brushes, and twigs are used to draw on papers of various sizes, shapes, colors, textures, and weights.

The different qualities of line are explored. Progression is made from the additive process of creating figures to the use of continuous lines and the drawing of profiles.

Representing things the way they "really" are, requires training in learning how to see. The basic shapes which are incorporated in the objects of the real world are identified. Much detail is carefully observed.

The foreground and background in pictures is consciously represented as children observe that smaller objects, high above the base line, represent objects in the distance.

*ART IN THE ELEMENTARY SCHOOLS, Grades K-6: Board of Education Curriculum Bulletin, No. 8

**ART TEACHING GUIDES, PUPPETS AND PUPPETRY: Board of Education Curriculum Bulletin, No. 8h

*** DESIGN ACTIVITIES FOR THE CLASSROOM, John Lidstone, Davis Publications, Massachusetts, 1977

CONTENT AREA AND TOPIC

PAINTING

*pp: 37-39
Time: 9-12 Weeks
Tempera

Discovery Painting

Paintings Based on
the Real and Imaginary
World

Mixed Media

MODELING WITH CLAY

*pp: 69-70
Time: 6-9 Weeks
Details and Design

Bowls, Boxes,
and Jewelry

SKILLS AND KNOWLEDGE

Wide and narrow brushes are used on newsprint and large manila paper.

Resourcefulness in mixing colors develops as two basic colors, colors with white, and colors with black are mixed.

Awareness of the painterly quality of their work grows as children use color contrast and pattern more deliberately.

Background becomes an integral part of the picture as "story content" provides subject matter.

Crayons and paints are combined to create mixed media pictures.

Figures are created with increased realism and attention to detail.

Art pieces are rotated and entire design is considered as work proceeds.

Clay coils are made and used to create free forms or functional shapes.

Clay coils or buttons (shaped by slicing a coil) are added to clay shapes for decoration.

CONTENT AREA AND TOPICSKILLS AND KNOWLEDGEDESIGNING WITH PAPER

*pp: 91-92

Time: 2-4 Weeks

Experimental Design

The Party Hat

Paper is scored with scissors and curved folds are made.

Experimentation with paper requires use of all designing skills.

A party hat is created as children measure paper to fit their head size.

Experimenting with colors, shapes, and three-dimensional effects; exotic hats are created.

FABRICS AND FIBERS

*pp: 100-106

Time: 4-6 Weeks

Experimental Stitchery

Appliqué

The cross stitch and tapestry stitch are used to make a sampler on burlap.

"Collage" is made on a fabric background and, therefore, becomes "appliqué."

A running stitch is used to sew design pieces to the fabric background.

The blanket stitch will add another decorative effect.

The applique pictures can be mounted on dowels for wall hangings or sewn into pillow covers.

Realistic pictures can be created by combining drawing, painting, and fabric collage.

CONTENT AREA AND TOPIC

POSTER MAKING
AND LETTERING

*pp: 79-80
Time: 4-6 Weeks
School Posters on
Safety, Health and
Other Topics

PUPPETS AND PUPPETRY

*pp: 136-137
**pp: 4-5
Time: 4-6 Weeks
Puppet Heads

Costumes

SKILLS AND KNOWLEDGE

Posters can be made from cut paper.
Simple pictures are cut from paper.
Block letters are cut out of paper and pasted
down to form key words.
The elements of the poster, pictures and words,
are arranged on a background of suitable
color contrast.
Letters are spaced for clear legibility.
Pictures and words are arranged to create a
unified design.
The elements of the poster are made permanent
by removing one piece of the design at
a time to apply adhesive and glue in place.

Papier-mâché is used to model a puppet head.
The features of the face are exaggerated for
maximum expressiveness.
The puppet face is painted with colors that give
maximum visibility at a distance.

A paper pattern is planned for the costume with
sleeves and (possibly) legs.
The paper pattern is pinned to fabric and cut out.
Costume is sewn and accessories are added.

CONTENT AREA AND TOPICSKILLS AND KNOWLEDGEPUPPETS AND PUPPETRY (continued)

Background

Drawing, painting, cutting, and pasting skills are used to create a backdrop of maximum visibility, suitable mood, and dramatic effect.

Staging

A stage is created that is sturdy, functional, and attractive.
An arrangement of cardboard cartons can be used.

Performance

Dexterity and coordination in manipulating puppets are increased.

PRINTMAKING

***pp: 63-71

Time: 2-4 Weeks

Nature's Designs

Awareness of the beautiful designs and textures found in nature is increased as children select natural objects with which to make prints.

Leaves, grasses, seeds, shells and other objects are used to make rubbings with crayons.

Natural objects can be inked to make prints on paper.

Objects may be pressed into soft clay to create fossil-like patterns. Ceramic clay is allowed to dry and plaster casts are made. Plaster is inked and covered with paper. Back of paper is rubbed with a brayer to produce a print.

CONTENT AREA AND TOPIC

CONSTRUCTING WITH

PAPIER-MACHÉ

*pp: 136-137

Time: 2-4 Weeks

Three-Dimensional Masks, Puppet
Heads, Free Standing Animal
Figures, and Non-objective Forms

SKILLS AND KNOWLEDGE

An armature is created out of rolled newspaper or
a cardboard shape.

Paper becomes a modeling medium as wheat paste,
water, and old newspapers are used to cover
the armature.

Paint and a variety of trimmings are used for
surface decoration.

Three-dimensional design requires that children
contemplate their work from all directions.

CONTENT AREA AND TOPICSKILLS AND KNOWLEDGECLEANLINESS AND HEALTH PROTECTION

*pp. 122-126

Diseases are caused by germs, or microbes. They may be spread by various methods, including sneezing and coughing. Disease-causing organisms such as viruses or bacteria may enter the body by various pathways. Immunization gives us protection against certain diseases. Many drugs help the body fight infections.

NUTRITION

*pp. 131-135

Most foods that supply our body needs are divided into four basic groups. These groups should be included in the daily food plans.

A good breakfast is very important: fruit, eggs or whole-grained or enriched cereals, toast, and milk will give a good start for the day.

A good lunch is one that is well balanced.

Dinner is an important meal of the day.

Snacks should include foods that promote good health.

Tea and coffee have no nutritional value. They also contain caffeine, a stimulant.

DENTAL HEALTH

*pp. 135-138

One of the functions of teeth is to aid digestion through the chewing and breaking up of food.

It is important to visit the dentist periodically.

There are government agencies that will help those who find it difficult to pay for the services of a dentist.

Fluoridation involves adding a chemical to water; using fluoridated water reduces dental decay.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

MENTAL HEALTH

*pp. 138-145

Also see FAMILY LIVING INCLUDING
SEX EDUCATION

There are many ways to make new friends, e.g., respecting and accepting others.

Children should work together cooperatively at school.

People differ from other people in many ways.

It is important to understand why there are rules and laws.

EYES AND THEIR CARE

*pp. 145-149

The structure of the eye is similar to the structure of a camera.

The eyes are delicate organs and require good lighting.

It is important to give the eyes proper care and adequate rest.

People who wear glasses when they need them are safeguarding their eyes.

EARS AND THEIR CARE

*pp. 150-154

The ears are the organs of the body which make it possible for people to hear. The ears are composed of three parts: the outer, middle, and inner ear.

It is important to take proper care of the ears so that they can function properly.

Injury may cause damage to the ears.

SAFETY AND FIRST AID

*pp. 154-160

Carelessness is frequently a factor contributing to accidents. Accidents can be prevented in classrooms, at home, and outdoors by following safety rules.

First-aid procedures are necessary in times of emergency.

CONTENT AREA AND TOPICSKILLS AND KNOWLEDGEEXERCISE, REST, AND SLEEP

*pp. 160-163

Proper exercise is necessary for maintaining good health.
Muscles are kept in better condition if they are properly exercised.
Sleep is an important health requirement.

ALCOHOL, TOBACCO, AND SUBSTANCE ABUSE

*pp. 164-167

Drinking alcoholic beverages to excess may result in drunkenness.
It is illegal for children to be served alcoholic beverages.
It is better for growing boys and girls to drink milk and fruit juices than alcoholic beverages.
All people should refrain from using tobacco.
Tobacco, which contains nicotine and tars, affects the lungs and blood vessels.
The inhalation of the fumes of non-medical substances is a dangerous practice.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

ORIENTATION TO THE LIBRARY MEDIA CENTER

Review and mastery of previously learned skills.

ORGANIZATION OF THE LIBRARY MEDIA CENTER

Cross references in the card catalog are used to locate material on the subject under consideration.

Cross references in reference books are used to locate material on the subject under consideration.

Book catalogs are used similarly to card catalogs to locate media.

USE OF LIBRARY MEDIA CENTER RESOURCES

Use of Encyclopedias

Subject entries in card and book catalogs and in encyclopedia indices lead from the general subject to the specific.

Encyclopedias are used to get an overview or summary of a subject.

Encyclopedias are arranged alphabetically or by subject.

Continuous revision is a means of updating encyclopedias.

Encyclopedia annuals and yearbooks are a means of updating the basic encyclopedia set.

Biography is an account of a person's life.

Collective biography contains accounts of the lives of more than one person.

A foreword or preface explains the approach of the author and the coverage of the subject.

An appendix provides material which supplements and expands the information contained in the basic text.

Maps are two-dimensional scale representations of geographical areas.

Globes are a three-dimensional scale representation of the world.

Legends are used to locate geographical sites on maps.

Use of Geographical Tools

CONTENT AREA AND TOPICSKILLS AND KNOWLEDGEINTERPRETATION OF LIBRARY MEDIA RESOURCES

Social Science Resources

Historical fiction gives insight into the history and development of the United States and other countries.

The understanding of history is enhanced by the study of biography.

Problems of urban living; the culture of social, ethnic and religious groups; the concerns of physically, emotionally or mentally handicapped people are explored in contemporary children's literature.

Encyclopedias differ in the breadth and depth of their coverage of different subjects; for example, compare the geographic coverage of World Book and Compton's

Skimming print materials gives practice in finding names, dates, phrases, facts, or ideas.

Interpreting Audiovisual Materials

Previewing audiovisual material gives practice in locating ideas and illustrations.

Interpreting Literature

Poetry gives significance to everyday life.

Poetry uses strong and evocative language to create mood and imagery.

Poetry appeals to the intellect as well as the emotions.

Content and emphasis of a story change when it is translated into a different medium. For example, compare Ezra Keat's John Henry in book and filmstrip form.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

NUMBER; NUMERATION

*pp. 3, 4, 12, 14

Concept of odd and even number
 Counting by thousands to ten thousands
 Place value through ten thousands
 Reading and writing four-digit and five-digit numerals in expanded notation
 Reading and writing numerals through ten thousands
 Comparing and ordering numbers
 Rounding numbers to the nearest ten; nearest hundred; nearest thousand
 Estimating quantities
 Dollars-and-cents system of numeration
 Rounding to the nearest dollar

ADDITION OF WHOLE NUMBERS

*pp. 5, 9, 10, 12, 18

Algorithm for computing sums of two addends named by three-digit and four-digit numerals with exchange: ones for tens; tens for hundreds; hundreds for thousands; multiple exchanges; dollars and cents

Algorithm for computing sums of more than two addends named by three-digit and four-digit numerals with multiple exchanges

$$\begin{array}{r} 345 \\ +276 \\ \hline \end{array}$$

Estimation - checking for reasonableness of an answer
 Use of commutative property

SUBTRACTION OF WHOLE NUMBERS

*pp. 5, 10, 11, 12, 15, 18

Algorithm for computing differences named by three-digit and four-digit numerals with exchange: tens for ones; hundreds for tens; thousands for hundreds; multiple exchanges; dollars and cents

374

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

MULTIPLICATION OF WHOLE NUMBERS

*pp. 6, 7, 9, 11, 13, 14,
15, 18

Application of inverse operations
Estimation — Checking for reasonableness of an answer

Basic facts
Multiplication by 0; by 1
Concept of multiples
Use of commutative property
Multiplication of 10 and multiples of 10 by numbers less than ten
 $2 \times 10 = \square$ $2 \times 20 = \square$
Multiplication of 100 and multiples of 100 by numbers less than ten
 $3 \times 100 = \square$ $3 \times 200 = \square$
Algorithm for multiplication of two-place and of three-place numbers by numbers less than ten
Multiplication in dollars and cents system
Estimation - checking for reasonableness of the product

DIVISION OF WHOLE NUMBERS

*pp. 7, 8, 10, 12,
14, 18

Basic facts
Role of 1 as a divisor; role of zero as a dividend
Recording and reading symbols for division
 $2 \overline{)12}$ $12 \div 2 = \square$
Multiplication and division as inverse operations
Division as repeated subtraction
Algorithm for division of two-place numbers and of three-place numbers, by numbers less than 10
Division in dollars-and-cents system
Estimation - checking for reasonableness of the quotient

FRACTIONAL NUMBERS

*pp. 6, 8, 9,
10, 13, 16

Meaning of fraction
Symbol for fractional number

MATHEMATICS GRADE 4

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Concept of improper fraction $\frac{5}{2}$
 Concept of mixed numeral $2\frac{1}{2}$
 Equivalent fractions $\frac{2}{4} = \frac{1}{2}$
 Counting; comparing; ordering
 Fraction names for 1 $\frac{4}{4} = 1$ $\frac{10}{10} = 1$
 Fractional number expressed as a whole number $\frac{12}{4} = 3$
 Concept of fifths and tenths
 Algorithm for finding fractional parts of numbers
 $\frac{1}{3}$ of 9 = $\square$
 Addition and subtraction of fractional numbers with like denominators $\frac{4}{10} + \frac{3}{10} = \square$ $\frac{7}{10} + \frac{3}{10} = \square$
 Addition and subtraction of whole numbers and fractional numbers with like denominators (mixed numerals)

$\begin{array}{r} 16 \frac{4}{10} \\ + 26 \frac{3}{10} \\ \hline 42 \frac{7}{10} \end{array}$	$\begin{array}{r} 42 \frac{7}{10} \\ - 26 \frac{3}{10} \\ \hline 16 \frac{4}{10} \end{array}$
---	---

MEASUREMENT

*pp. 6, 8, 13, 14,
18, 19

Linear:

Estimating length; reading scales on rulers;
 measuring perimeter
 Standard units - centimeter, decimeter, meter, kilometer
 inch, foot, yard, mile
 Relationships between standard units
 $10 \text{ cm} = 1 \text{ dm}$
 $12 \text{ in.} = 1 \text{ ft.}$

MATHEMATICS GRADE 4

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Weight:

Estimating weight; reading scales on measuring devices

Standard units - gram, kilogram, metric ton

ounce, pound, ton

Relationships between standard units

1000 g = 1 kg

1 lb. = 16 oz.

Capacity:

Estimating capacity; reading scales on measuring devices

Standard units - liter, milliliter

cup, pint, quart

Relationships between standard units

1000 mL = 1 L

2 pts. = 1 qt.

Time:

Clock - relationships among day, hour, minutes, seconds

Telling time in quarter hours; in five-minute and minute intervals

Recording time: 3:06

Calendar - relationships between days-year; days-month; weeks-year; reading a calendar; recording date 1/11/79

Temperature:

Concept of temperature as a measure of heat

Measure temperature using Celsius and Fahrenheit thermometer

Concepts of freezing point and boiling point

Standard units - degree °C and degree °F

GEOMETRY

*pp. 3, 11, 13, 18

Properties of plane figures (quadrilateral, triangle, and circle)

Some properties of rectangular solid, cylinder, and cube

Perimeter of a polygon (rectangle, square)

Recognition of symmetrical patterns

CONTENT AND AREA TOPIC

SKILLS AND KNOWLEDGE

GRAPHS; STATISTICS; PROBLEM
SOLVING; PROBABILITY

*pp. 10, 11, 15

Collecting and organizing data
Constructing and interpreting bar graphs
Deriving word problems and questions relevant to the bar
graphs
Recognizing the appropriate number operation(s) needed to
solve word problems
Identifying insufficient and irrelevant information
Meaning of average (mean) of a set of numbers

MUSIC - GRADE 4CONTENT AREA AND TOPICSKILLS AND KNOWLEDGERHYTHM

*p. 61-66

Word patterns are related to rhythm patterns.

Interesting word phrases help create rhythm patterns.

Musical instruments are used to perform rhythm patterns.

More than one rhythm pattern can be performed at the same time.

SINGING

*p. 72

Musical Learnings

The Round

The song is the medium for many musical learnings, e.g., the phase, mood, form, harmony.

Two-part singing is easily introduced with the "round."

Hand signals for pitch (Kodaly) are used to develop interval awareness, (thirds, fifths).

LISTENING

*p. 79

Tonality

A tonal center is present in most songs (key).

Most traditional songs are written in the "major" or "minor" mode.

Different composers wrote in different modes.

INSTRUMENTAL MUSIC

Improvisation

The creative experience begins with free improvisation. Musical instruments and the voice can improvise to songs, poetry, stories, recordings.

Melody Instruments

Melodies and harmony are performed on the xylophone, metalophone and the recorder.

The recorder is a musical instrument which leads to the playing of orchestral instruments.

*TEACHING MUSIC Grades K-4 1978-1979 Curriculum Bulletin No. 5

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

WHERE THE BODY MOVES

Spatial Awareness

Forming work or play groups and choosing appropriate space
Engaging individual activity regardless of available total area
Understanding significance of space in playyard, halls
lunchroom, and other areas of school
Moving freely with or without equipment

Direction Awareness

Applying direction to simple stunts and tumbling activities
Applying direction to rope-jumping patterns
Changing direction rapidly, particularly in running activities
Thinking of direction in terms of air space rather than ground
space

Level Awareness

Varying levels rapidly while in motion and manipulating small
equipment
Varying levels readily in the execution of simple stunts and
tumbling
Varying levels in relays with and without equipment

Pathways Awareness

Engaging in relays involving different pathways and a variety
of small equipment
Beginning to think of pathways in air space rather than ground
space

THE BODY AND ITS PARTS

Body Awareness

Participating in activities and games involving laterality
(right and left reinforcement) -- pass ball or baton from
right to left hand; tag with right or left hand; shoot
ball from left side of backboard
Developing the efficient use of one's right- or left-handedness
Using fine motor control (fingers rather than palm in ball hand-
ling)

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

THE BODY AND ITS PARTS

Body Awareness (cont.)

Using specific parts to perform a handstand with assistance, a handstand and forward roll, headstand and forward roll, headstand and shoulder roll

HOW THE BODY MOVES

Time, Force, Flow

Using force and flow efficiently in bouncing, catching, throwing, kicking, striking, hitting and various locomotor skills

Improving speed in movement--dashing from a starting point to a finish line

Jumping and striking a ball or shooting at a basket

Non-Locomotor Movements

Using push, pull, bend, stretch, curl, twist, and turn in the performance of stunts, tumbling, game, and dance activities

Locomotor Movements

Applying manipulative skills to sport-related activities (locomotor)

running and bouncing as in basketball

kicking and moving a ball forward as in soccer

catching a ball on the run as in football

hitting the ball as in handball

Manipulative Movements

Being able to kick, punch, bounce, bat, catch, and throw successfully, individually or in small groups

Applying these skills in games

Jumping rope; being able to criss-cross rope while jumping;

cross feet and separate them in jumping;

jump at increasingly faster speed;

perform 30 jumps in 10 seconds

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

WHAT THE BODY CAN DO

Uses of the Parts

Performing log roll, hop on one foot, squat and jump
Balancing in a handstand with assistance
Combining handstand with forward roll
Performing headstand
Performing shoulder roll

RHYTHMS AND DANCE

Dance

Combining locomotor steps to achieve accepted dance steps such
as the polka or schottische
Responding rhythmically to folk, popular and other music
Working with partners of own choice; mix partners
Moving clockwise and counterclockwise
Traveling in lines of two, three, four
Forming squares
Being able to perform the Cumberland Square, La Raspa, Patty
Cake Polka, Greensleeves

SCIENCE GRADE 4

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

FINDING DIRECTION WITH A COMPASS

*pp: 157-173

Time: 4 weeks

Find the Way Home

Finding the Way With a Compass

The Earth As a Compass

OUR NEAREST NEIGHBOR IN SPACE:

THE MOON

*pp: 174-193

Time: 7 weeks

Seeing the Moon

Distance of the Moon From the Earth

*SCIENCE - GRADE 3-4, #11 -66-67 Series

Landmarks help us find our way.

A map represents an area of the earth and shows facts about that area.

The sun's position at different times of the day gives us direction.

A compass tells direction.

One end of a compass needle points in a northerly direction. We can make a compass by rubbing a steel needle on a magnet.

A freely swinging magnet may be affected by iron or steel nearby.

Unlike poles of magnets attract each other; like poles repel each other.

The earth behaves like a magnet and attracts compass needles.

The earth's magnetic poles are not the same as its geographic poles.

Moonlight is reflected sunlight.

The moon seems to change its shape and shows dark and light areas on its surfaces, mountains, and plains.

The moon is $\frac{1}{4}$ the diameter of the earth.

The moon is about 30 "earths" away from the earth.

The moon is the nearest astronomical body to the earth.

The moon looks small because it is far from the earth.

SCIENCE GRADE 4

CONTENT AREA AND TOPIC

Man On the Moon

Eclipses of the Moon and Sun

GETTING NEW PLANTS

*pp: 194-205

Time: 6 weeks

New Plants From Seeds, Leaves,
Stems, and Roots

SOUNDS TRAVEL:

SOUNDS CAN BE RECORDED

*pp: 206-224

Time: 5 weeks

Sounds Are Carried By Air and
By Other Materials

SKILLS AND KNOWLEDGE

Moon probes discover many facts about the moon.

Man must take his own environment with him to the moon because there is no air, water, or food on the moon.

The temperature on the moon varies from extreme cold to extreme heat.

The moon has less gravity than the earth.

An eclipse of the moon occurs when the earth blocks off the light of the sun.

An eclipse of the sun occurs when the moon blocks off the light from the sun.

New plants come from seeds that are scattered in different ways to suitable surroundings.

In some plants a new plant may be started from roots, stems, or leaves.

Sounds travel from one place to another through air, water, and solids.

CONTENT AREA AND TOPIC

Sounds Can Be Recorded
for Future Use

WEATHER AND CLIMATE
FROM SEASON TO SEASON

*pp: 225-254

Time: 7 weeks

The Seasons

Varieties of Weather in
New York City

SCIENCE GRADE 4

SKILLS AND KNOWLEDGE

Sounds can be controlled.
Sound can be reflected from a surface.
Sound travels more slowly than light.
An echo is reflected sound.

Sounds are preserved by impressing their vibrations onto
a turning record.
The vibrations carve wavy grooves in the record which, when
the record is played, cause a needle to vibrate and
reproduce the sound.

New York has a yearly cycle of four seasons: autumn, winter,
spring, and summer; each one with its own temperature.
For each season the average temperature is determined by
the number of hours of daylight and the angle at which
the sunlight strikes the earth.
Rays of sunlight which strike the earth directly warm it more
than rays which strike it at a slant.

New York City has a great deal of "unusual" weather. New York
City experiences lightning, thunderstorms, hail, ice
storms, fog, hurricanes, blizzards, haze, cold waves, heat
waves, and drought.
A rainbow may occur after a rain.

SCIENCE GRADE 4

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

MOVING THINGS MORE EASILY

*pp: 255-276

Time: 6 weeks

Machines With Wheels Help
Move Things More Easily

Wheels are found in many machines.
The pulley, gear and wheel, and axle make it easier to move things.

Ramps Help Lift Things
More Easily

Ramps are used to lift things more easily and to slow the speed of objects moving downward.

Levers Help Move Things
More Easily

With some levers, less force is needed to move objects and objects may be made to move faster.

THE WATER WE USE

*pp: 277-300

Time: 4 weeks

The Water We Drink

Our water is collected outside our city from watersheds.
Aqueducts bring the water from distant reservoirs,
Drinking water tastes good and is free from germs,
Water must be conserved,

Bodies of Water in New York
City

Many kinds of bottom plants and animals live in or near water near New York City.
Moving water changes the surrounding land.

CONTENT AREA AND TOPICSKILLS AND KNOWLEDGEURBAN LIVING IN GEOGRAPHIC REGIONS
AROUND THE UNITED STATES

Review and reinforce grade 3 learn-
ings to meet individual and class
needs.

HOW PEOPLE DISCOVERED AND EXPLORED WHAT
IS NOW THE UNITED STATES

America was rediscovered by other European explorers almost
five hundred years after the Vikings.
Knowledge was acquired by Europeans from the Native Americans.
Native Americans, Spanish, French, English, and Dutch made
settlements.

HOW PEOPLE SETTLED AND DEVELOPED THE
ORIGINAL THIRTEEN COLONIES

Many people helped lead the colonists into the Revolution.
Many people helped lead the fight for independence.

HOW THE PEOPLE OF THE UNITED STATES
USE THEIR GEOGRAPHY (COMPARISON OF
COLONIAL PAST AND PRESENT)REGIONAL STUDIESCASE STUDIES (Select one)

New England
Southeast

Case Study of the Northeast (a sample case study outline)

Geographical Features

Chief Occupations of the People

Geographic Basis for Industry

Geographic Basis for Agriculture

Interdependence within the Region and with other Regions

Major problems in the Region

Social, Cultural and Economic Practices of the Region

HOW PEOPLE DEVELOPED OUR NATION
- (TO PRESENT)

The nation expanded from shore to shore.

People of many lands contributed to the industrial, scientific,
economic, and cultural development of the U.S.

Many people worked for human dignity and to improve social
conditions.

Many people led the fight for civil liberties.

GRADE 4: AMERICAN PEOPLE AND LEADERS: HOW THE UNITED STATES BEGAN AND GREW (Reference for Adaptation)

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

HOW PEOPLE IN OTHER REGIONS OF THE
UNITED STATES USE THEIR GEOGRAPHY
(COMPARISON OF 19th CENTURY PAST AND
PRESENT)

CASE STUDIES (Select one)

Midwest
Southwest
Northwest
U.S. Possessions - e.g.,
Puerto Rico,
Virgin Islands

CURRENT AFFAIRS

WORD STUDY SKILLS

Many people helped to develop modern science and industry.
Many people have been leaders in government, arts, national
defense, fight for freedom.
People of many ethnic groups have contributed to our economic,
political, and cultural life.

Current affairs are studied to see how they affect children's
lives, and to assist in developing civic responsibility.

Road maps are used to chart directions and to learn map symbols.
Routes of interest on maps are traced.
Visual content of maps and pictures are compared.
Relative directions (northeast, southwest) are used.
Cities, states, nations and continents are identified.
Simple estimations of distance are made.
Picture and clipping files are used for reports.
An atlas, world almanac, and encyclopedias are used to find
information.
The card catalogue is used to locate books in a library.
Sources of information in a report are identified in a simple
bibliography.
Events are placed in sequence.
Conflicting views and statements are presented in a discussion.

Grade 5

MINIMUM TEACHING ESSENTIALS

Art	226
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CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

PAINTING

*pp: 39-41

Time: 9-12 Weeks

The Near and Far
in Space

Expressive Use of Color

Overlapping shapes in a painting express near and far relationships.

Contrasts in light, dark, color, and textures make overlapped parts clear.

Different colors appear to advance or recede.

A wide variety of color tones can be made from any one color. The combination of color tones in a painting shows sensitivity.

Observed characteristics are rendered by expressive use of color.

DRAWING

*pp: 54-57

Time: 9-12 Weeks

Expressing the
Near and Far

Near and far relationships are represented by drawing objects in front of or behind one another.

Contrasts of light and dark, plain and textured areas make visible parts of overlapped forms clear.

Relative importance of things in space is determined by their size, shape, color, and position.

Realism is established by integration of observing, thinking and expressing.

CONTENT AREA AND TOPICSKILLS AND KNOWLEDGEMODELING WITH CLAY

*pp: 71-73

Time: 4-6 Weeks

Form and Construction

The construction of an expressive form is planned.
Complex forms often combine two or more types of construction.
The design or surface treatment of a clay form can be modified to make a more interesting object.

MAKING POSTERS

*pp: 80-81

Time: 2-4 Weeks

Pictorial Symbols and
Dramatic Effect

Pictorial symbols and appropriate words dramatize an idea in concise form.
Changes in emphasis are produced by adjustment of sizes and placement of symbols and of word areas.
Dramatic effect is achieved through use of a limited number of colors.

WORKING WITH PAPER

*pp: 92-93

Time: 2-4 Weeks

Three-Dimensional
Construction as Process

A three-dimensional paper or cardboard article requires a working sketch or trial construction.
Constructions are made through a combination of measuring, folding, cutting, rolling, fitting, and fastening.
Improvements in design or construction are made as work progresses.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

USING CLOTH AND TRIMMINGS

YARNS AND FIBERS

*pp: 106-109

Time: 4-6 Weeks

Making the Article

Article to be made requires a working sketch or pattern.
A combination of measuring, cutting, fitting, stitching, weaving,
or hooking is used to make a cloth, woven, or hooked article.
Design and construction modifications are made as work proceeds.

CONSTRUCTING WITH WOOD
AND OTHER MATERIALS

*pp: 125-126

Time: 4-6 Weeks

The Design and Control
of the Material

Wood or other construction requires pattern or working sketch.
Selection of materials from a wide assortment of shapes and
linear elements is required.
Adjustments to improve design and construction are made as
piece is crafted.
Appropriate tools are necessary for control of material.

PUPPETS AND PUPPETRY

*pp: 137-139

Time: 4-6 Weeks

Characterization

Importance of individual puppets is a function of size, color,
and expressive characterization.

Heads

Puppet heads are devised from ready-made forms such as boxes,
balls, or cans.

Puppet heads are modeled from papier-mâché.

Dramatic Effect

Lighting and sound effects increase dramatic qualities.
Costumes and stage settings are an important part of puppet
show.

The puppet stage can be improvised.

CONTENT AREA AND TOPICSKILLS AND KNOWLEDGECLEANLINESS AND HEALTH PROTECTION

*pp. 168-171

The skin provides a first line of defense against disease and infection.

A daily bath serves to wash away harmful germs that gather on the skin.

Frequent, regular brushing and washing of the hair helps to prevent conditions such as dandruff, dry scalp, and pediculosis (head lice).

It is important for hands to be washed after using the toilet and before handling or eating any food.

Protection against infection is reinforced when people are careful not to share towels, combs, brushes, and other personal toiletries.

NUTRITION

*pp. 171-173

Many parts of the body assist in the digestion of food.

Daily practices should be established to promote good digestion, such as eating in pleasant surroundings and in a leisurely fashion, and eating meals at regular times.

DENTAL HEALTH

*pp. 174-176

A tooth is constructed of three main parts: the crown, neck, and the root.

The tooth is composed of three types of living tissue: the enamel, dentine, and pulp.

MENTAL HEALTH

*pp. 176-181

Also see FAMILY LIVING INCLUDING
SEX EDUCATION

Personality development depends upon heredity, environment, and experiences.

An individual's attitude toward self, family, friends, and school has an important influence on personality.

* HEALTH EDUCATION IN ELEMENTARY SCHOOLS Curriculum Bulletin No. 2.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

MENTAL HEALTH (continued)

A positive attitude toward family, friends, school, and community should result in the acceptance and sharing of responsibility.
There are specific personality traits which family and friends find acceptable.
In order to carry out responsibilities one must learn to budget time for work and play.

EYES AND THEIR CARE

*pp. 181-184

Specific body structures and functions serve to protect the eye. The human eye is very similar to a camera.
There are three kinds of specialists concerned with the care of the eyes: ophthalmologist, optometrist, and optician.
It is important to wear and care for eyeglasses for the improvement of one's vision.

SAFETY AND FIRST AID

*pp. 184-190

Accidents are the leading cause of death in the school-age population.
Most accidents can be prevented through the development of good safety habits.
Many children are hurt as pedestrians and bicycle riders; this can be prevented by following specific safety rules.
Wearing the proper clothing for games contributes to safe living.
Safety rules should be followed at swimming pools and beaches.
First aid means helping someone who is hurt or suddenly ill.
This is the kind of help that you give before medical assistance arrives.

CONTENT AREA AND TOPICSKILLS AND KNOWLEDGEEXERCISE, REST, AND SLEEP

*pp. 190-194

Exercise can be obtained in various ways, depending on one's interests. Good health and safety habits make exercise more enjoyable and more valuable for the individual. Rest can be obtained in various ways. One should plan for his or her own exercise and rest. Sleep is important to good health.

ALCOHOL, TOBACCO, AND DRUGS

*pp. 194-198

Alcoholic beverages are derived from the fermentation of sugar and yeast. Alcohol is often used on religious and social occasions. Excessive drinking may result in nutritional deficiencies. There are many factors which motivate children to smoke cigarettes. There are also many good reasons why one should not smoke. Tobacco disturbs the normal functions of the body's systems. Marijuana is an illegal drug. Its effects may be harmful.

HUMAN GROWTH AND DEVELOPMENT

*pp. 199-200

Also see FAMILY LIVING INCLUDING
SEX EDUCATION

Individuals vary in their rates of growth. The onset of puberty varies with individuals. Girls usually reach puberty sooner than boys. The endocrine glands play an important role in pubertal changes. Menstruation is a normal and natural physiological function. Proper hygienic habits during menstruation are important.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

ORIENTATION TO THE LIBRARY MEDIA CENTER

Review and mastery of previously learned skills.

USE OF LIBRARY MEDIA RESOURCES

Atlases and gazetteers contain information about topography, climate, places, economic and historical developments. Biographical dictionaries contain brief information about a person's life, e.g., Current Biography, Webster's Biographical Dictionary.

A thesaurus is a list of words and their synonyms.

An almanac is an annual publication containing general information about a variety of subject.

Resources, printed and audiovisual, are selected independently to gather information on specific topics.

INTERPRETATION OF LIBRARY MEDIA RESOURCES

Notes taken from more than one source are correlated for a report.

Reports are made orally and in writing.

Multi-media bibliographies are compiled using a standard form.

Conclusions are drawn from details in illustrations.

Folktales and myths, modern and traditional, provide insight into major world cultures.

MATHEMATICS GRADE 5CONTENT AREA AND TOPICSKILLS AND KNOWLEDGENUMBER; NUMERATION

*pp. 23, 24, 34, 42, 44

Counting by thousands to hundred thousands
 Place value concepts through hundred thousands; period chart
 Reading and writing four, five, six-digit numerals
 Ordering and comparing whole numbers
 Use of greater than ($>$), less than ($<$), and equal to ($=$) symbols
 Round whole numbers to the nearest hundred; to the nearest thousand; to the nearest ten thousand
 Estimating quantities
 Concept of decimal notation: .4 .68
 Decimal system of numeration - tenths; hundredths
 Counting by tenths; by hundredths
 Comparing and ordering tenths; hundredths
 Reading and writing decimal numerals
 Equivalent decimals .1 = .10
 Relationship between decimal system of notation and dollars and cents
 Round numbers in decimal form to nearest whole number

ADDITION AND SUBTRACTION OF WHOLE NUMBERS

*pp. 24, 25, 30, 37

Algorithm for computing sums and differences of numbers in the thousands; ten thousands; hundred thousands; dollars-and-cents system
 Algorithm for computing sums of more than 2 addends, sums less than 1 million
 Application of principle of related operations; of commutative property
 Estimation - checking for reasonableness of an answer

MULTIPLICATION OF WHOLE NUMBERS

*pp. 26, 31, 36, 39, 40

Basic facts
 Multiple of a number: 6 is a multiple of 3 because $2 \times 3 = 6$
 Algorithm for multiplication of four-place number by numbers less than 10

*MATHEMATICS · Grade 4 · Grade 5 Scope and Sequence · Curriculum Bulletin · 1969-70 Series No. 8

MATHEMATICS GRADE 5

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Algorithm for multiplication using multiples of 10 as factors:

$$\begin{array}{r} 10 \\ \times 10 \\ \hline \end{array} \qquad \begin{array}{r} 10 \\ \times 20 \\ \hline \end{array}$$

10 as one factor and the other factor named by a two-place number

$$\begin{array}{r} 10 \\ \times 13 \\ \hline \end{array}$$

Factors named by a two-place number

$$\begin{array}{r} 34 \\ \times 12 \\ \hline \end{array}$$

Multiples of 10 and multiples of 100 as factors

$$\begin{array}{r} 100 \\ \times 10 \\ \hline \end{array} \qquad \begin{array}{r} 200 \\ \times 20 \\ \hline \end{array}$$

A two-place number as one factor and a three-place number as another factor

$$\begin{array}{r} 321 \\ \times 23 \\ \hline \end{array}$$

Estimation - checking for reasonableness of the product

DIVISION OF WHOLE NUMBERS

*pp. 26, 27, 28, 29, 32, 36, 39

Basic facts - apply the concept of multiplication and division as inverse operations

$$7 \times 5 = 35 \quad \text{so} \quad \square \times 5 = 35 \quad \text{or} \quad 5 \overline{)35}$$

Concept of division as repeated subtraction

Algorithm for division of three-place numbers by numbers less than 10, long and short forms

$$\begin{array}{r} 213 \\ 3 \overline{)639} \\ \underline{-600} \\ 39 \\ \underline{-30} \\ 9 \\ \underline{-9} \\ 0 \end{array} \qquad \begin{array}{r} 200 \\ 10 \\ 3 \\ \hline 213 \end{array}$$

$$\begin{array}{r} 213 \\ 3 \overline{)639} \end{array}$$

MATHEMATICS GRADE 5CONTENT AREA AND TOPICSKILLS AND KNOWLEDGE

Algorithm for division of three-place numbers by two-place numbers 23J851
 Estimation - checking for reasonableness of the quotient

FRACTIONAL NUMBERS: COMMON FORM;
DECIMAL FORM

*pp. 25, 26, 28, 29, 38, 39
 34, 35, 36, 42

Concepts:

Fraction as an indicated quotient $1 \div 3 = \frac{1}{3}$

Any whole number can be expressed as a fraction with a denominator of 1 $5 = \frac{5}{1}$

Counting; comparing -- expressing comparison as

$$\frac{1}{2} > \frac{1}{4}$$

Fraction names for 1 $\frac{10}{10} = 1$

Improper fraction $\frac{15}{10}$

Mixed numeral $7 \frac{3}{10}$

Equivalent fractions with denominators of 2, 4, 8; 5, 10, 100

Procedures for:

Expressing a mixed numeral as an improper fraction

Expressing an improper fraction as a mixed numeral or as a whole number

Finding common denominator

Algorithms for addition and subtraction of fractional numbers with related denominators

$$2 \frac{1}{4} + 7 \frac{3}{8} = \square$$

with unlike denominators

$$2 \frac{1}{2} + 3 \frac{1}{5} = \square$$

$$3 \frac{3}{8} - 2 \frac{1}{4} = \square$$

$$3 \frac{2}{5} - 1 \frac{1}{3} = \square$$

MATHEMATICS GRADE 5

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Algorithms for computing sums and differences

using tenths: $.4 + .3 = \square$

$7.9 - 5.3 = \square$

using hundredths:

$.04 + .03 = \square$

$7.09 - 5.03 = \square$

Algorithm for computing products of fractional numbers

$2 \times \frac{1}{3} = \square$

$\frac{1}{2} \times \frac{1}{2} = \square$

MEASUREMENT

*pp. 25, 27, 29, 33, 44

Linear:

Estimating length; reading scales on rulers; measuring perimeter

Standard units - kilometer, meter, decimeter, centimeter, millimeter
mile, foot, inch

Relationships between standard units:

$1 \text{ m} = 100 \text{ cm} = 1000 \text{ mm}$

$1 \text{ m} = 10 \text{ dm}$

Weight:

Estimating weight; reading scales on measuring devices

Standard units - metric ton, kilogram, gram, milligram
pound, ounce, ton

Relationships between standard units:

$1000 \text{ mg} = 1 \text{ g}$

Capacity:

Estimating capacity; reading scales on measuring devices

Standard units - kiloliter, liter, milliliter
ounce, cup, pint, quart, gallon

Relationships between standard units

$1 \text{ kL} = 1000 \text{ L}$

Time:

Estimating lengths of time

Relationships: months-years; seconds-minutes-hours;

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

GEOMETRY

*pp. 29, 32, 43

GRAPHS; STATISTICS; PROBLEM SOLVING;
PROBABILITY

*pp. 24, 25, 30, 31, 36, 37

days-weeks-months
Concepts of decade and century

Temperature:

Measuring temperature using Celsius and Fahrenheit
thermometers

Standard units - degree $^{\circ}\text{C}$ and degree $^{\circ}\text{F}$

Reading and writing temperature measurement

0°C - freezing point of water

Polygons (quadrilaterals, triangles, pentagons)

Some characteristics of the circle

Concept of circumference

Meaning of average (mean)

Computing average

Collecting and organizing data

Constructing and interpreting bar graphs; line graphs

Deriving word problems and questions relevant to the bar and
line graphs

Recognizing the appropriate number operation(s) needed to solve
word problems

MUSIC GRADE 5

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

LISTENING

Style Melody

Phrases in a melody vary even when repeated.
The expressive quality in music can be compared to other arts, e.g., paintings.
Composers often favored a particular style of composition, e.g., harmonic, contrapuntal.

SINGING

*p. 26-35

Part-Singing

Melodies are often arranged in two, three-or four-part harmony.

Understanding and hearing intervals are important to part-singing.
Part-singing is introduced through rounds, partner songs and descant.

Listening is integrated with singing to produce part-singing.

RHYTHM

*p. 6-19

Rhythm is the force which generates musical flow.
6/8, 9/8 and 12/8 are compound meter signatures.
5/4 and 7/8 are seldom used in American traditional songs.

MUSIC READING

*p. 86

Melodic Patterns

Melodies often move in repeated musical phrases.
Written symbols (musical notation) provide a system of storing and retrieving musical ideas.

Solfeggio

Solfeggio is a system in which the tones are named, e.g., do, re, mi, fa, sol, la, ti, do.

INSTRUMENTAL

*p. 71

The classroom instrumental music experience includes: pitched and non-pitched rhythm instruments, and the recorder.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

SPORTS SKILL DEVELOPMENT

Basketball

Exploring how to pass, catch and shoot
 Discovering efficient ways of performing these skills
 Refining catching below and above the waist
 passing - chest pass, chest bounce pass, push bounce
 pass
 shooting - chest shot, chest foul shot, underhand foul
 shot
 Applying skills in squad activities and lead-up games
 Knowing formations for practice of drills - single/double lines,
 circle, semi-circle

Soccer

Exploring how to trap, dribble, kick, and pass
 Discovering efficient ways of performing these skills with
 different parts of the foot
 Refining how to trap with sole of foot, one knee, both knees
 Dribbling with inside of foot and toe
 Kicking and passing with inside/outside of foot, top of in-
 step, heel, toe
 Applying these skills to squad activities and lead-up games
 Knowing formations for drills - single/double lines and
 circles

Track and Field

Exploring starts, running form for sprints, visual baton pass,
 and standing broadjump
 Refining indoor sprint start, outdoor sprint start, standing
 start, crouching start, running form, visual baton pass,
 standing broadjump
 Applying these skills to squad and lead-up activities
 Knowing formations for drills - single and double lines and
 circles

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

GYMNASTICS

Stunts and Tumbling

Exploring rolls--forward, backward, log
balances--headstand, handstand, cartwheel
Gaining efficiency in rolls and balances
Refining these skills
Executing forward roll from a squat, backward roll, continuous
rolls on several mats, frog headstand, headstand

Apparatus: Balance Beam

Exploring ways of mounting and dismounting the beam and performing locomotor movements
Discovering efficient ways of mounting, dismounting and performing locomotor movements
Executing locomotor movements:
Walks - forward, backward, sideward
dips
walk to center of beam, turn and return
Dismounting with an upward jump with arms straight up and body arched

Apparatus: Vaulting Box

Exploring mounting and dismounting and vaulting over low sections of the box
Discovering efficient ways to mount, dismount, and vault over the box
Approaching the box from right or left side preparatory to performing on it
Jump on box, kneel and jump off.
Execute vaults with body moving over higher sections of the box.
Execute a forward roll on the box.

DANCE

Combining specific locomotor steps to music
Performing two-step, step-hop, walk, balance, heel-toe, run

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

DANCE (Cont.)

Performing patterns: circle, star, swing, lines of three, wheel, do-si-do
Performing: Cowboy Schottische, Danza (Puerto-Rican), Red River Valley, Sicilian Tarantella

PHYSICAL FITNESS

AAHPER Youth Fitness
Test Items

Achieving physical fitness levels necessary to pass national and standardized tests: pull-ups, flexed-arm hang, sit-ups, shuttle run, long jump (standing broad jump), 50-yard dash, 600-yard run-walk

Rope Jumps

Performing endurance jump--120 jumps per minute
Performing speed jump--35 in 10 seconds
Performing coordination jump--cross rope forward

SCIENCE GRADE 5

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

HOW MAN CHANGES MATERIALS

*pp: 26-49

Time: 6 weeks

Separating Substances

Fresh water may be obtained from salt water by the processes of evaporation and condensation of the water, leaving the salt behind.

Filters and strainers separate particles of different sizes.

Solids which do not dissolve may be separated from liquids by using a filter or strainer.

Some liquids which do not mix can be separated by standing.

Chemical Changes

Living things such as bacteria, yeast, and mold make changes in food. These changes are souring, changing sugar into alcohol and carbon dioxide, and changing alcohol to vinegar.

Carbon dioxide gas is made when baking powder is mixed with water.

Household bleach releases oxygen which combines with a dye and changes it.

Rust forms when iron combines with oxygen.

Fuel, sufficient air, and heat are needed for burning.

Fires can be put out by removing the fuel, cutting off the air supply, or lowering the temperature.

When a candle burns, water and carbon dioxide are produced.

When a different substance is made, a chemical change occurs.

*SCIENCE - GRADE 5, #6, 68-69 Series

SCIENCE GRADE 5

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

LITTLE ENVIRONMENTS

*pp: 50-76

Time: 5 weeks

In the Schoolyard, On and
Under A Tree, On the Lawn,
In the Soil, In the Water

Many kinds of plants and animals live in New York City.
The living things vary in size.
Each kind of environment has its own conditions of heat,
moisture, wind, light, minerals, air, plants, and
animals.

Plants and animals depend upon each other and their environ-
ment for food, warmth, shelter, air, and water.

Green plants are producers, animals are consumers.

Certain microscopic bacteria and fungi are decomposers.

Living things change the environment.

THE SUN'S FAMILY

*pp: 77-105

Time: 5 weeks

Planet Earth in the Solar
System

The earth is one of nine planets which orbit around the sun.

Planets are illuminated by light from the sun and move
in elliptical orbits around the sun.

The distance of a planet from the sun varies during its
revolution.

Planets are at different distances from the sun; those closest
to the sun move the fastest.

Asteroids and comets are part of the solar system.

SCIENCE GRADE 5

CONTENT AREA AND TOPIC

Our Star, The Sun

CLIMATE

*pp: 106-137

Time: 7 weeks

Climate and Weather

Climate and Latitude

Climate and Oceans

SKILLS AND KNOWLEDGE

The sun is a nearby star; stars are distant suns.

The sun shines because of its own atomic activities.

Life depends on the sun.

The sun rotates on its axis and could accommodate over a million earths inside it.

It takes light eight minutes to travel from the sun to earth.

The entire solar system moves in space.

Climate is the average weather for a region over a long period of time.

There are many climates in the United States.

The most important characteristics of a climate are temperature and moisture.

Latitude is the distance of a place from the equator and determines year-round temperature.

The more slant to the sun's rays, the less heating results.

Winds are caused by the unequal heating of the earth.

Water warms up and cools off more slowly than land.

Coastal cities are warmer in winter and cooler in summer than inland cities at the same latitude.

The West Coast climate is different from that of the East Coast because of prevailing westerlies.

There is a water cycle.

CONTENT AREA AND TOPICSKILLS AND KNOWLEDGE

Climate and Mountains

Mountains affect temperature and rainfall.
The higher the elevation, the cooler the region.
The side of a mountain facing the wind has more rainfall than the other side.
When moist air is pushed up a mountain, it cools, the water vapor condenses into clouds, and rain may fall.

MIRRORS AND THE REFLECTION
OF LIGHT

*pp: 138-157

Time: 5 weeks

Seeing With Mirrors

The image of an object is reversed in a mirror, left to right.
Tilting a mirror at different angles helps to see other objects.
A mirror works because it reflects light.

Mirrors Reflect Light

A mirror changes the direction of light striking it.
The path of light reflected from a mirror can be changed by facing the mirror in different directions.
Light can be reflected many times.
The angle of incidence equals the angle of reflection.

MAKING IT GO

*pp: 158-188

Time: 6 weeks

Muscles Make It Go

Muscles move many tools and machines.
Muscles move arm and leg bones to which they are attached.
Muscles work in pairs opposing each other.

Flowing Water Can Make It Go

Water flowing downstream can move heavy loads and turn wheels.
Running and falling water can exert a force.
A dam is built across a body of water to raise the level of the water behind it.
The sun is the source of energy for flowing water.

Wind Makes It Go

The heating of the earth causes winds.
Winds move sailboats and turn windmills.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Steam Makes It Go

Steam from water boiled in a confined space can push very hard. Steam turns the blades of wheels and drives propellers of ships. Steam gets its driving force from burning fuel or nuclear energy.

Rapid Burning Makes It Go

Hot gases are produced when fuels burn. In some engines, the hot gases push against the pistons which drive wheels or propellers which make the vehicle go. In jets and in rocket engines, hot gases are blown out of the rear end causing the vehicle to go forward. Jets use oxygen from the air; rockets carry their own supply.

BATTERIES AND BULBS

*pp: 189-218

Time: 6 weeks

Bulbs in Different Kinds of Circuits

Electricity flows in a circuit. A series circuit provides only one path for the current. A parallel circuit provides two or more paths for the current. In a parallel circuit, the other bulbs will remain lit if one bulb goes out. In a series circuit, all the bulbs go out if one goes out.

Dry Cells in Different Kinds of Circuits

The voltage of a series arrangement of dry cells is equal to the sum of the voltages of the individual cells. The voltage of a parallel arrangement of similar cells is equal to the voltage of any individual cell.

Fuses

A fuse is a special metal strip that is part of a circuit which melts when too much electricity flows through it.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

AMERICAN PEOPLE AND LEADERS: HOW THE UNITED STATES BEGAN AND GREW

Review and reinforce grade 4 learnings to meet individual and class needs.

WHAT ARE THE MAJOR GEOGRAPHIC FEATURES OF THE EARTH?

Time: 4 weeks

Our home is the planet earth which is part of the solar system. The seven largest land masses are called continents. These continents are separated by natural boundaries such as mountains and bodies of water. There are four large bodies of water called oceans. The equator divides the earth into the northern and southern hemispheres. An imaginary line from the north pole to the south pole creates the eastern and western hemispheres. Global geographic knowledge includes air masses, weather, wind, ocean currents and natural resources.

HOW DO OUR NEIGHBORS IN THE WESTERN HEMISPHERE USE THEIR RESOURCES AND GEOGRAPHY?

Required Case Studies:

Canada
Mexico and Caribbean Sea Area
South America

Time: 14 weeks

See the sample case study for sub-topics.

CANADA (A Sample Case Study)

(See pp. 248-249.)

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

GEOGRAPHIC FEATURES

Location
Natural environment
Population distribution

The region is characterized by mountains, hills, plateaus and plains, extensive waterways and a harsh climate.

HISTORICAL DEVELOPMENT

Significant trends - past to present
Important leaders
Current changes

Early exploration and settlement by French and English;
gradual development from British Colony to Commonwealth;
growth of parliamentary democracy

ECONOMIC PRACTICES AND CHIEF OCCUPATIONS
OF THE PEOPLE

Meeting needs (food, clothing and shelter)
Producing goods and services for wants

Geographic basis for industry

Great natural resources are mineral, water, forest and wild-life.

Geographic basis for agriculture

Semi-arid lands lend themselves to wheat production, cattle and sheep ranching.

Interdependence within the region and with other regions

There are many resources within the region that make it one of the world's important food-exporting and manufacturing nations of the world.
The economy of this region is in many ways dependent upon the economic conditions in the United States.

SOCIAL AND ECONOMIC PRACTICES
OF THE REGION

This is a bilingual, bicultural democracy: French and English.
There are many cultural differences among the various ethnic groups.
This country has a high standard of living and high levels of education.

CONTENT AREA AND TOPICSKILLS AND KNOWLEDGEMAJOR PROBLEMS IN THE REGION

Conflict between French and English Canadians has intensified. Cultural differences have led to social, political, and economic difficulties.

Economic dependence upon the United States has caused conflict in maintaining Canadian identity.

HOW DO PEOPLE AROUND THE WORLD USE THEIR RESOURCES AND GEOGRAPHY?

The characteristics of different countries and regions are studied, with particular emphasis on geographic, economic and cultural relationships.

Required Case Studies: Select Two of the Following World Regions:

Western Europe
 Eastern Europe and U.S.S.R.
 Middle East
 Far East
 Africa, South of the Saharas
 Africa, North of the Saharas

Time: 10 weeks

HOW CAN WE BETTER UNDERSTAND GLOBAL TRENDS AND ISSUES?

Current world problems include overpopulation, environmental pollution, conservation, race relations, political and territorial disputes, unemployment and inflation, poverty, control of disease, etc.

Time: 10 weeks

CURRENT AFFAIRS

Current affairs are studied to see the effect on children's lives, and to assist in the development of civic responsibility.

WORK STUDY SKILLS

Degrees of longitude and latitude are used to find location. Degrees of longitude are used to understand time zones. Newspapers, magazines, pamphlets, and audiovisuals are used as sources of information.

A variety of maps is interpreted and used: elevation, products, rainfall. Grid system is used to find locations.

Events are arranged in chronological order.

Outerspace maps are used to identify contours and shapes of land masses.

CHILDREN'S NEEDS

Basic needs, the same for all children, are the drives that influence behavior. These needs include:

1. NEED TO BE VALUED

A child's self-image has top priority. A child can't be "somebody" unless the child is "somebody" to someone else. Self-image must be reflected in the eyes and actions of those the child loves and values. All children must be valued for who they are, where they come from, and what they bring with them from their culture, language, desires, and expectations.

2. NEED TO DO

Children learn by using all their senses to explore, discover, and form judgments about the things in their world.

3. NEED TO SHARE WITH PEOPLE THEY TRUST AND BE TRUSTED TO SHARE

Children need adults who care, who can guide the children's discovery into mutually respected action, who inspire and develop competence and confidence.

4. NEED TO BE GIVEN A CHANCE TO GROW AT HIS OR HER RATE IN HIS OR HER OWN WAY

Growth for children has many dimensions - social, emotional, physical, and intellectual. Growth is uneven and highly individual. All children do not reach the same level of growth at the same age, nor does a child grow in the same way in all areas.

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PRINCIPLES OF GROWTH & DEVELOPMENT

Basic principles that enable persons to guide children with a degree of assurance include:

1. DIFFERENTIATION

Development proceeds from simple to complex. In both structure and activity, development is gradual in the direction of complexity and variety. Differentiated structures and functions become organized in new and more inclusive patterns.

2. DISCONTINUITY OF GROWTH RATE

Development is never uniform or all at the same time. Various parts and systems grow at various rates at a different time. Growth shows characteristic spurts or peaks and then slows down to periods of relative latency.

3. INTERRELATEDNESS OF GROWTH

Every aspect of the child's life affects every other aspect. The physical and social environment as well as factors of personality and physical development affect academic achievement.

4. DIVERSITY OF GROWTH

No two children are exactly alike. No two grow quite alike. Wide differences exist among children of the same age, the same family, and from the same community. Each child has his or her unique growth style.

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THE TEACHING ADULT SHOULD BE FAMILIAR WITH THE LEVELS OF GROWTH IN EACH AREA, WHICH MAY OR MAY NOT CORRESPOND WITH THE CHRONOLOGICAL AGE OF EACH CHILD.

OVERVIEW: Generally includes ages eleven to fifteen. Early adolescence is a period of rapid growth that transforms the child into an adult. It is the period in which the young person attains adult status, appearance and sexual maturity, in the physical sense. The adolescent develops formal or abstract thinking abilities.

PHYSICAL	SOCIO-EMOTIONAL	INTELLECTUAL
<u>Eleven - twelve Year Old</u> • Wide variations in physical maturity occur. Girls are about two years ahead of boys in beginning the adolescent cycle of growth and tend to reach physiological maturity earlier; girls tend to be larger and stronger than boys of the same age. • Marked physical changes may affect their energy; the child may easily tire. • May show awkwardness in movement due to rapid muscular and skeletal growth • Team spirit is strong; child may enjoy vigorous games.	<u>Eleven - twelve Year Old</u> • Is restless and eager for activity, exuberant, outgoing and boisterous • Skills and boldness are admired. • Quarrels and makes up readily; responds to anger frequently and violently, physically and verbally • Similarity of interests and mental age increasingly influence choice of friends; has developed a strong loyalty to peers. • As puberty approaches, child may desire periods of aloneness and may show beginnings of shyness. • May have fears although may not admit it • Has a growing sense of humor	<u>Eleven - twelve Year Old</u> • Is capable of being absorbed in manipulative, constructive, and experimental activities • Ability to reason is on the increase, with an understanding of abstract ideas. Continued heightening of emotional susceptibility Can understand human reproduction more fully

PHYSICAL	SOCIO-EMOTIONAL	INTELLECTUAL
	<u>Eleven - Twelve Year Old (cont.)</u> . Has admiration for the more skillful. . Is critical of adults, yet tends to act politely, factually, seriously, honestly, and confidingly with adults.	
<u>Thirteen-Year-Old</u> . Is less awkward and angular . Boys approach girls in height . Girls are still more physically mature than boys. . Has very high energy level . Muscular growth is rapid; restlessness may be a concomitant.	<u>Thirteen-Year-Old</u> . Is sometimes moody, withdrawn, and reflective . Has fewer friends . Sex consciousness may cause self-consciousness and shyness with opposite sex; however, the desire to tease appears as part of the sex attraction. Inner attitudes and tensions may be brought on by changes in body buildup and chemistry. . Often forms strong attachments to adults who show personal interest. Tendency to idol worship	<u>Thirteen-Year-Old</u> . Increases in critical thinking capacity . Is inclined to solve own problems; increasingly logical approaches to problems . Gains in memorizing ability

PHYSICAL	SOCIO-EMOTIONAL	INTELLECTUAL
<u>Thirteen-Year-Old (Cont.)</u> • Puberty cycle is still in progress; development of secondary sex characteristics continues. • Increases in height and weight may cause poor posture. • The heart may not develop rapidly enough to keep pace with unusual growth of body and limbs; fainting and dizziness may occur.	<u>Thirteen-Year-Old (Cont.)</u> • Conduct is influenced by the opinions of the group to which the boy or girl belongs. Attempts by adults to criticize their child's friend's qualities often intensify loyalties to the friend. Child may tend to reject parents or may feel rejected because of conflicts over behavior and authority relations.	
<u>Fourteen-Year-Old</u> • Girls are about two years ahead of boys at this age; sexual differences become more noticeable. • Posture is improving; general health is reflected in appearance. • Increased muscular development and resistance to fatigue make new skills and activities possible. More demanding sports may be played.	<u>Fourteen-Year-Old</u> • Is resentful of parental control; enjoys doing things independently • Group approval is of primary importance. • Expresses feelings freely; generally happy and friendly but does have short, explosive bursts of temper • Sexual manifestations may cause self-consciousness and, in turn, sexual delinquency may be caused by a feeling of non-belonging in the home.	<u>Fourteen-Year-Old</u> • Approaches crest of intellectual development, but judgment is far from mature • Uneven development occurs in various areas; the adolescent may be adult in grasping mental problems, yet remain a child in body and emotions.

PHYSICAL	SOCIO-EMOTIONAL	INTELLECTUAL
<u>Fourteen-Year-Old</u> (Cont.) Increased control over accessory muscles makes possible many new skills and refinements in previous skills		<u>Fourteen-Year-Old</u> (Cont.) - Concepts of natural laws and physical relationships are almost fully developed. - Ability to use formal logic is generally superior to experimental capacity. - Usually strives for outstanding performance.
<u>Fifteen-Year-Old</u> - May have achieved physiological adulthood - Continued improvement in muscular coordination - Puberty cycle is completed in majority of cases. - May have periods of glandular instability with fluctuations in energy level; ailments may include headache, nose bleed, palpitation, nervousness and acne.	<u>Fifteen-Year-Old</u> - Is intensely emotional while trying to understand social relationships. - Is more cheerful, friendly, outgoing; shows better control of temper and feelings - Parent-adolescent conflict is at its peak. Adolescent has tendency to respond more to the influence of a teacher than of the parent. Conformity to group may be stronger than conformity to parental controls. - Likes to be independent; shows a "know it all" attitude - Interest in and emphasis on physical attractiveness and good grooming may be at their height.	<u>Fifteen-Year-Old</u> - Generally thinks clearly and logically - Deals well with abstract problems - Can make use of capabilities, e.g., becoming discussion leaders, assuming increasing responsibility for school activities - Is more apt to think independently - Is intellectually serious

FOLLOWING DIRECTIONS

Independently following complex directions which require research skills, e.g., finding books, articles, audio visuals on a topic, and evaluating appropriateness of sources

Dictionary
Encyclopedia
Atlas
Telephone Directory
Almanac
Current Biography
Readers' Guide to Periodical Literature
New York Times Index

[illegible]

Bibliography

Analyzing and synthesizing data collected by scientists' tools

[illegible]

Extending outline technique using sentence and topic forms; and 2rd level subcategories:

I.

A.

1.

2.

B.

1.

2.

Using footnotes; preparing limited bibliography

USING GRAPHIC REPRESENTATION
AND INVESTIGATIVE TOOLS

Refining interpretation of more complex maps, charts, globes and tables

Manipulating more complex equipment in investigating problems.

Using a variety of measurements to investigate problems and support hypotheses

Constructing models of research designs

6	7	8	9
	XXXXXXXXXXXX	XXXXXXXXXXXX	XXXXXXXXXXXX
	XXXXXXXXXXXX	XXXXXXXXXXXX	XXXXXXXXXXXX
	XXXXXXXXXXXX	XXXXXXXXXXXX	XXXXXXXXXXXX
	XXXXXXXXXXXX	XXXXXXXXXXXX	XXXXXXXXXXXX
	XXXXXXXXXXXX	XXXXXXXXXXXX	XXXXXXXXXXXX

Grade 6

MINIMUM TEACHING ESSENTIALS

Art	260
Health Education	265
Mathematics	268
Music	272
Physical Education	273
Science	275
Social Studies	279

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

PAINTING

**pp: 9-10

Time: 9-12 Weeks

Color Qualities

Colors may be mixed directly on the painting surface.
Colors are light and bright, rich and dark, or deep and subtle.
Colors can run, swirl, melt, and flow.
By variations of light, dark, and color a three-dimensional quality is expressed.
Color choice can express mood.

DESIGNING IN TWO DIMENSIONS

*pp: 25-26

Time: 6-9 Weeks

Design and Craftsmanship

The crafts of other cultures afford examples of good design and craftsmanship.

The function of an object often dictates its design.
Basic concepts of design apply to simple techniques of weaving, knotting, and stitchery.

Weaving and Knotting

Knitted garments can be unraveled.
A blunt needle and yarn are used to reweave the open spaces in burlap.
The knotting of threads creates varied textures.
Two sticks can serve as supporting frame for weaving yarn.

The Loom

Simple cardboard can serve as a frame for a loom.

CONTENT AREA AND TOPICSKILLS AND KNOWLEDGEDESIGNING IN THREE DIMENSIONS

**pp: 33-34

Time: 6-9 Weeks

Constructing with Paper

Pleating, crushing, folding, curling, rolling, and scoring change a piece of paper from a two-dimensional shape to a three-dimensional form.

Forms in three dimensions are created by joining and fastening materials together.

Three-dimensional forms penetrate and enclose space.

Paper forms are joined by slitting, weaving, and overlapping as well as by using glue or fasteners.

Patterns of dark and light are created by slitting or piercing surface of form.

DRAWING

*pp: 3-4

Time: 9-12 Weeks

The Qualities of Line

Every part of a drawing is part of a design.

Drawn lines have direction.

Lines vary in size and direction.

Lines may express value, texture, and pattern.

The scale in drawings can be varied by using large sheets of paper, vertical or horizontal strips, or unusual proportions.

Details add interest to a drawing.

CONTENT AREA AND TOPIC

PRINTMAKING

**pp: 45-46

Time: 4-6 Weeks

Rubbing for Repetition

LETTERING

**pp: 57-58

Time: 2-4 Weeks

Principles of Design

Stroke and Spacing

SKILLS AND KNOWLEDGE

Printmaking is a process which duplicates images. The application of pressure with the side of a crayon to paper placed over a textured surface produces an image. By adjusting the object beneath the paper and repeating the process, a single object may be represented many times in a design.

Cutouts from original designs or from magazines can provide shapes for rubbings.

The application of a thin coat of paint to the cutout transfers the image to the rubbing paper.

Simple tools are used in lettering.

Letters and symbols are combined in designs.

Individual letters are always legible.

Cutout letters are used as stencils.

Newspapers and magazines contain examples of different type-faces.

Contrasting colors make signs attractive and visible.

Columns in newspapers, turned horizontally, provide guidelines for lettering.

An alphabet is designed with a few basic strokes.

Strokes are uniform.

Letters are spaced visually with the goal of simplicity and legibility.

CONTENT AREA AND TOPICTHE PUPPET PERFORMANCE

**pp: 65-66

Time: 4-6 Weeks

Simple Puppets and
the PuppeteerSKILLS AND KNOWLEDGE

Dialogue evolves from the character of an expressive puppet. Original plays are written or stories adapted for the puppet stage.

The puppet's character, as well as the puppet's figure, is created by the puppeteer.

Simple lighting effects are part of the puppet performance. Puppets created at different times and places show great variety.

Puppeteers are hidden from the audience by the puppet stage. Finger puppets are miniature puppets whose costumes slip on and off fingers.

Fist puppets require lipstick or other washable medium to add detail to the face.

PHOTOGRAPHY

**pp: 75

Time: 4-6 Weeks

The Photograph and
Visual Perception

Picture taking is a process in which ideas and images are examined, selected, and rejected.

The viewfinder of camera expands the student's visual awareness.

Photography applies the principles of composition such as balance, emphasis, rhythm, tension, and movement.

Photographs stimulate visual perception.

Photographs are cropped to reveal the most interesting sections.

Photographs can be cut up and arranged to create feelings of imbalance or motion, humorous or bizarre effects.

Photographs can be enlarged.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

FILMMAKING

*pp: 85-86
Time: 4-6 Weeks
The Art of Film

The Moving Image

Filmmaking expresses a personal viewpoint in a contemporary medium.
Film is an art form.
Filmmaking imposes technical limitations.
Filmmaking integrates the visual arts and other subject areas.

Flipping pages of drawings whose figures have slightly changed positions can animate drawings.
Moving images on film create an illusion of motion on the viewing screen.
Magic markers can create lines, spots, and shapes on film that proceed from frame to frame while moving from one position to another when projected.
The design on film is considered as a linear painting using variety, repetition, rhythm and space.

COSTUME DESIGN

*pp: 95-96
Time: 3-5 Weeks
Costuming and the Individual

The Effect of Color

Choice of clothing expresses individuality.
Selecting and designing clothing presents opportunities to apply art concepts to a real situation.
Costume designing projects the self image.

Fabrics exist in a wide variety of colors.
Color in clothing has an effect on the appearance, mood, and personality of the individual.
Some colors seem to exaggerate size while others seem to minimize size.
Different people look better in different colors.

CONTENT AREA AND TOPICSKILLS AND KNOWLEDGENUTRITION

*pp. 206-211

Food is used by the body for growth, repair of damaged cells, and the maintenance of body efficiency.

Nutrients are substances in food used to nourish the body.

The "Basic Four" food groups make it easy to plan a balanced diet.

Care should be taken in the preparation and preservation of food.

CLEANLINESS AND HEALTH PROTECTION

*pp. 201-206

People who live in communities are always faced with the threat of communicable diseases.

The community undertakes measures to prevent disease through a program of education, inspection, and disease control.

Building codes are established to safeguard health by establishing regulations for toilet facilities, plumbing, and sewage disposal.

The Environmental Protection Agency maintains a continuous program of education and analysis in order to control air and water pollution.

Good health is everyone's responsibility; resistance to communicable disease can be developed in many ways.

Eating well-balanced meals helps to keep us healthy.

DENTAL HEALTH

*pp. 211-214

Caries (cavities) of the teeth are caused by bacteria. Tooth decay and gum damage can be minimized or prevented by proper dental care.

Cleaning the teeth carefully helps reduce cavities and gum disease.

Using dental floss cleans food from between the teeth.

Visiting a dentist regularly is a valuable health practice.

MENTAL HEALTH

*pp. 215-219

Also see FAMILY LIVING INCLUDING
SEX EDUCATION

Children and parents strive continuously to develop a harmonious family unit.

As children mature they need to make and keep friendships.

This involves certain responsibilities.

It is important to learn how to handle both success and failure.

*HEALTH EDUCATION IN ELEMENTARY SCHOOLS

Curriculum Bulletin No. 2

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

SAFETY AND FIRST AID

*pp. 222-230

Automobile passengers sometimes contribute to accidents by distracting the driver.

First aid is defined as the immediate and temporary care given to a victim before the doctor arrives.

It is important to be able to recognize and treat traumatic shock.

One should be able to recognize a possible fracture and administer the proper first aid.

Artificial respiration is needed when a victim has stopped breathing.

A victim having a severe epileptic seizure may be helped by proper first aid.

Many children are injured or die from poisoning each year. Preventive measures and proper first aid can reduce the number and severity of these accidents.

Many people, particularly middle-aged and older persons, are subject to heart attacks. The first aider can be helpful if the proper action is taken.

EXERCISE, REST, AND SLEEP

*pp. 232-236

A healthy, physically fit person gets the most out of life.

A person can achieve and maintain a high level of health and fitness if he or she participates in a program of daily vigorous activity.

By learning lifetime sports skills such as golf, tennis, and bowling early in life, a child is preparing for the continuation of fitness activity during the adult years.

Maximum fitness is achieved and maintained when regular, vigorous activity is balanced by an adequate amount of rest.

CONTENT AREA AND TOPICALCOHOL, TOBACCO, DRUGS, AND
SUBSTANCE ABUSE

*pp. 236-241

HUMAN GROWTH AND DEVELOPMENT

*pp. 241-242

Also see FAMILY LIVING INCLUDING
SEX EDUCATIONSKILLS AND KNOWLEDGE

Excessive drinking interferes with one's judgment and coordination.

All people do not react to alcohol in the same way.

Alcoholics and their families can obtain help from a number of organizations such as Alcoholics Anonymous and Al-Anon.

Young people begin to drink socially for many reasons.

Nicotine has various harmful effects on health.

Smoking is a difficult habit to break.

Under some conditions, marijuana use can become so unpleasant that panic results.

For some people, marijuana can be harmful.

Barbiturates are depressants which users take because of their intoxicating and sedating effects. Abuses of these drugs often cause serious social and emotional problems.

Barbiturate overdose occurs frequently. Withdrawal from barbiturates may lead to convulsions and death.

The inhalation of the fumes from chemicals such as airplane glue produces sensations resembling alcohol intoxication. Inhaling volatile substances can be harmful to the brain, liver, and kidneys.

By developing regard for our physical, emotional, mental, and social functioning and well-being, we are less likely to harm ourselves through drug misuse or abuse.

Bodily changes that occur during puberty prepare girls and boys for adulthood.

In boys, puberty involves the growth of hair on the face and pubic areas, changes of voice, and maturation of the reproductive system.

In girls, puberty involves the growth of hair under the arms and in the pubic region, development of the breasts, the onset of menstruation, and maturation of the reproductive system.

MATHEMATICS GRADE 6

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

NUMBER: NUMERATION

*pp. 3, 4, 5, 7, 8

Place value concepts to millions; period chart
 Reading and writing five, six, seven-digit numerals
 Writing numerals using expanded notation
 $77,777 = 70,000 + 7,000 + 700 + 7$
 Estimating quantities
 Rounding whole numbers to the nearest hundred-thousand; to the nearest million
 Divisibility: 100,000 is divisible by 5
 Factors: 3 is the product of two factors, 3 and 1
 Decimal system of numeration: tenths; hundredths; thousandths
 Comparing and ordering tenths, hundredths, thousandths
 Renaming decimal numerals 1.2 as 12 tenths
 Reading and writing decimal numerals
 Expressing decimal numerals in expanded notation
 $.647 = .6 + .04 + .007$
 Rounding tenths to the nearest whole number

ADDITION AND SUBTRACTION
 OF WHOLE NUMBERS

*pp. 4, 13

Compute sums and differences involving any whole numbers less than 10 million
 Estimation and checking
 Verbal problems involving addition and subtraction
 Computation with dollars and cents

MULTIPLICATION OF WHOLE NUMBERS

*p. 9

Algorithm for multiplication:
 using multiples of ten and multiples of one thousand
 $10 \times 1000 = \square$
 $20 \times 2000 = \square$
 using a four, five, and six-place number as one factor
 and a two-place number as another factor

$$\begin{array}{r} 2356 \\ \times 23 \\ \hline \end{array}$$

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Multiplication by 10; by 100; by 1000
 Verbal problems involving multiplication
 Estimation and checking
 Computation with dollars and cents

DIVISION OF WHOLE NUMBERS

*p. 9

Algorithm for division of four-place numbers by two-place numbers, long and short forms
 Estimation - checking for reasonableness of the quotient
 Division by 10

FRACTIONAL NUMBERS: COMMON FORM;
 DECIMAL FORM

*pp. 6, 7, 8, 9, 10, 11, 12,
 14, 17, 18

Concepts:

Meanings of fraction; equivalence; ratio
 Common denominator; least common denominator;
 Relationship between common form and decimal form

Procedures for:

Renaming fractional numbers

$$\frac{6}{8} = \frac{3}{4} \qquad \frac{1}{10} = \frac{10}{100}$$

Expressing fractional numbers in simplest form

$$\frac{6}{8} = \frac{3}{4} \qquad \frac{27}{8} = 3 \frac{3}{8}$$

Finding common denominator; least common denominator

Algorithms for addition and subtraction of fractional numbers with like and unlike denominators

$$2 \frac{1}{3} + 4 \frac{1}{2} = \square$$

$$6 \frac{5}{6} - 4 \frac{1}{2} = \square$$

Algorithm for computing products of fractional numbers and mixed numbers

$$\frac{1}{2} \times \frac{3}{4} = \square$$

$$1 \frac{3}{4} \times 2 \frac{1}{2} = \square$$

Algorithm for computing sums and differences using tenths;

MATHEMATICS GRADE 6

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

MEASUREMENT

*pp. 8, 9, 12, 15, 17, 19

hundredths; thousandths

Algorithm for computing the product of:

a whole number and tenths

a whole number and hundredths

a whole number and thousandths

tenths by tenths $.3 \times .5 = \square$

hundredths by tenths $.7 \times .2 = \square$

Algorithm for computing the quotient of tenths and of hundredths by a whole number

$$2 \overline{)8}$$

$$4 \overline{)24.88}$$

Estimation - checking for reasonableness of the sums, differences, products and quotients

Linear:

Estimating length; measuring perimeter; measuring circumference

Standard units - kilometer, meter, decimeter, centimeter, millimeter

mile, foot, inch

Relationships among standard units

$$1 \text{ mm} = 0.1 \text{ cm} = 0.001 \text{ m}$$

$$1 \text{ m} = 0.001 \text{ km}$$

Area:

Rectangle and square

Standard units - square centimeter, square meter, square foot, square inch

Volume:

Rectangular prism

Standard units - cubic centimeter, cubic meter, cubic inch, cubic foot

Weight:

Estimating weight

Standard units - metric ton, kilogram, gram, milligram, ton, pound, ounce

CONTENT AND AREA TOPIC

SKILLS AND KNOWLEDGE

Relationships between standard units

2 kg = 2000 g

1 g = 1000 mg

Time:

Relationships: hour - minute - second

hour - day - year

rates: kilometers/hour; meters/second
miles/hour

Temperature:

Measuring temperature using Celsius and Fahrenheit
thermometers

Standard units - degree Celsius ($^{\circ}\text{C}$)
degree Fahrenheit ($^{\circ}\text{F}$)

Reading and writing temperature measurement
100 $^{\circ}\text{C}$ - boiling point of water

GEOMETRY

*pp. 9, 14, 15, 17, 19

Some properties of plane figures (circle, quadrilaterals)

Concept of rectangular region

Some properties of rectangular prisms, i.e. solids whose bases
are rectangles.

GRAPHS; STATISTICS; PROBLEM SOLVING;
PROBABILITY

*pp. 4, 14, 6, 8, 11, 12

Constructing, reading and interpreting line, bar and picture
graphs

Mean (average)

Deriving word problems relevant to the graphs

Determining the procedures needed to solve verbal problems

Translating verbal problems into mathematical terms (sentences)

Solving word problems involving the basic operations with
whole numbers, fractional numbers, decimals and units
of measure

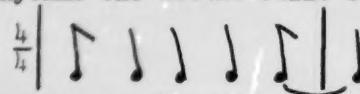
CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

RHYTHM

*p. 15-18

Syncopation is an important element in jass and Latin American Music. In syncopated rhythms the accent falls between the beats



or accents fall on other than the regular metric accent.

SINGING

*p. 20

The improvement of tone quality and intonation is an on-going objective.
Singing intervals of fifths, thirds and fourths improves part singing.
The Kodaly method indicates a specific hand signal for each step of the scale.
Sing the first, third and fifth steps of the major scale together, produce the I chord.

LISTENING

*p. 52-54

Interdisciplinary

The listening experience and the visual arts experience are integrated to form an interdisciplinary experience.
Paintings, sculpture, dance, and music are related in form and expressive qualities.

INSTRUMENTAL MUSIC

Classroom music is the means through which musical talent is identified.
Musical instruments such as the clarinet, trumpet, violin, become part of the school orchestra or band.
Single instrument instruction (violin class, clarinet class) is a recommended instructional procedure.

CREATIVE

*p. 90-91

Sound scores are performed with musical instruments and classroom instruments.
Tape recorders with "sound on sound" features are an excellent creative musical tool.
Composing and improvising can be based on the pentatonic scale (five tone scale).

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

SPORTS SKILL DEVELOPMENT

Basketball

Exploring passing over a greater distance, shooting with one hand, dribbling
 Discovering efficiency in these skills
 Refining skills: long pass, two-hand overhead pass, dribbling to a basket and shooting, one-hand shot, push-shot
 Applying skills to squad activities and lead-up games
 Knowing formations for drills -- single file, leader and group, parallel, and zigzag
 Knowing rules of lead-up games

Soccer

Exploring blocking and heading
 Discovering efficiency in these skills
 Refining skills
 Applying skills to squad activities and lead-up games
 Knowing formations for drills
 Knowing rules of lead-up games

Track and Field

Improving execution of standing broad jump
 Exploring throwing a softball for distance
 Discovering efficiency in throwing a ball for distance
 Refining skills of jumping for distance, throwing for distance and running
 Executing 50-60-100 yard dashes and 220-yard relay
 Refining visual baton pass for 220-yard relay
 Applying skills in squad activities -- pass it to me; measure my jump.

GYMNASTICS

Stunts and Tumbling

Refining execution of log, forward backward and shoulder rolls
 Executing forward roll from a run, backward roll from a jackknife position, headstand to a forward roll, headstand with assistance

Apparatus: Balance Beam

Refining mounts and dismounts
 Executing one-knee mount, squat mount, jump straddle dismount, seat straddle, front scale and "V" seat
 Refining locomotor movements on the beam: Step-hop, skip, toe-touch walk, plie walk

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Vaulting; Box

Refining mounts: Kneel mount, squat mount with hand support, standing mount
Refining dismounts: 1/4 and 1/2 turns, kneel and forward roll, swan jump-off
Refining vaults: Standing front squat vault (left and right side), front squat, vault and run

DANCE

Executing a variety of steps: walk, balance, hora (side step - hop run), polka, skip, grand right and left
Using steps in the formation of various patterns
Performing: all-American promenade, hora, jessie polka, maypole dance

PHYSICAL FITNESS

AAHPER Youth Fitness Test

Achieving physical fitness levels necessary to pass national and standardized tests: pull-ups, flexed arm hang, sit-ups, shuttle run, standing broadjump, (long jump), 50-yard dash, 600-yard run, 600-yard walk

Rope Jumps

Performing endurance jump: 150 jumps per minute
Performing speed jump: 45 in 10 seconds
Demonstrating coordination and agility; Cross rope forward and backward while jumping; execute double pass of rope under the feet on each jump

SCIENCE GRADE 6

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGES

LIVING THINGS AND THE ENVIRONMENT

*pp: 1-67, lessons 1-24
Time: 24 periods

Finding Out About the
Environment

The environment is composed of all living and non-living things that surround an organism.
The environment may change with place and time. The change may be sudden or gradual.
Light, water, air, temperature and soil are physical factors of the environment.

Perceiving the Environment

We perceive the environment through our five senses. Our senses are adapted in different ways to identify conditions in the environment.
We use many instruments to extend our senses and to make more accurate observations.
Measurements are ways of describing and communicating characteristics of an environment.

The Climate Affects
The Environment

Air is matter and therefore has weight and exerts pressure equally in all directions.
The ocean of air surrounding the earth is called the atmosphere. The changes in the weather occur in the lower part of the atmosphere.
Air is a mixture of various gases and particles that are important to living things.
We use a variety of instruments to measure changes in the environment which affect weather-temperature, pressure, humidity, wind speed and direction and clouds.

*INVESTIGATING OUR ENVIRONMENT, Science: Grade 6, Experimental Edition, June 1974

SCIENCE GRADE 6

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGES

Other Environments

Climate is a condition of the environment over a long period. Living things that survive in an environment have developed different ways of adapting to the environment. Humans modify their environment by controlling the effects of the weather (heating, air conditioning and clothing).

Communities of plants and animals also live in aquatic environments. Living things have adaptations which enable them to survive conditions in aquatic environments.

INTERACTIONS IN THE ENVIRONMENT

*pp: 68-118, Lessons 25-45
Time: 20 periods

Life Activities

A study of many different organisms show that all living things require food, oxygen and water and suitable temperature range to survive. When changes are gradual, some species of living things may eventually adapt to the changed environment. In a balanced environment, there is a constant interaction among plants, animals and the non-living factors of the environment.

Interrelationships of Living Things

Living things depend on other living things for food. Green plants are the primary source of food for other living things. All living things have special adaptations for obtaining their food, moving about in the environment and protecting themselves from predators and the environmental conditions. Living things may also serve as an environment for other living things. The human body has developed many defenses against disease-producing organisms.

SCIENCE GRADE 6

CONTENT AREA AND TOPIC

The Organization of
a Stable System

ENERGY IN THE ENVIRONMENT

*pp: 119-188, lessons 46-69

Time: 23 periods

The Sun is the Source of All
Energy

Alternate sources of
Energy

SKILLS AND KNOWLEDGES

The interaction of the various populations in a community with each other and with the non-living physical environment make up a complete ecosystem.

Many factors affect the population of a community. They include food, water, sunlight and available space.

The interaction of the living things in the system results in a balance of nature. Changes in the balance result in competition and elimination of some parts of the ecosystem.

The measurement of energy from the sun may be accomplished by having students use a variety of science devices.

Conditions in the atmosphere affect the amount of sunlight reaching the earth.

Plants need sunlight to grow and make food.

Humans are affected by light in a variety of ways. The exposure may be beneficial at times or harmful at other times.

The energy that drives the water cycle comes from the sun.

The sun's energy that is stored on earth in the form of fossil fuels was once part of living plants and organisms. This supply is rapidly diminishing because of increased use.

Solar energy may be used directly as a source of heat and electrical energy,

In the future, scientists will look to other forms of energy including wind, moving water, tides, geothermal heat and atomic fission and fusion.

SCIENCE GRADE 6

CONTENT AREA AND TOPIC

Energy Forces Change
The Environment

MAN CHANGES THE ENVIRONMENT

*pp: 189-238, lessons 70-88

Time: 20 periods

We Add Pollutants to the
Environment

Improving Our Environment

SKILLS AND KNOWLEDGES

The forces of wind, moving water, and heat in the earth are constantly changing the shape of the earth's surface. The energy for building up or breaking down the earth's surface comes from the sun or from heat within the earth.

Pollutants are wastematerials that are harmful to the environment. Air pollutants are gases or particles not normally found in air. Air pollutants affect the health of living things, damage property and cause changes in the environment and weather conditions.

Water becomes polluted when chemicals, organic wastes and heat are added to water.

Population changes result in changes in the environment and increased competition for available food and space.

Other kinds of pollution (heat and sound) also affect living things. Changes in environments can be so rapid that living things cannot adjust and do not survive.

Solid wastes may be used in a variety of ways to make it useful including recycling, land fill, construction, energy source. Special farming techniques, selection and ocean farming will result in increased crop yields.

Practicing conservation will conserve our natural resources and endangered species.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

HOW WE LEARN ABOUT THE PAST

Time: 4 weeks

Sources of information

Work of archeologists, historians,
and anthropologists

We learn about the past from the work of social scientists
such as archeologists.

Information is obtained from many sources such as artifacts,
oral traditions, and written records.

Archeologists recreate the past from artifacts and material
remains; historians from primary and secondary sources;
anthropologists from direct observation techniques.

HOW MODERN PEOPLE (HOMO SAPIENS) DEVELOPED

Time: 3 weeks

There was a lengthy period before man's appearance on earth.
We record historical time in various ways.

There were several forms of early man.

All modern humans are homo sapiens.

There are racial similarities and differences; humans are
much more alike than different.

HOW WESTERN CIVILIZATION DEVELOPED

Time: 17 weeks

Required: Select two of the following; Egypt; Greece;
Mesopotamia.

Case Study of How Civilization
Developed in Egypt.

Geographic factors influenced the
development of civilization

Egypt is the "gift of the Nile."

Government developed to meet
the needs of the individual
and of society

Absolute monarchy and a rigid social class system developed.

Laws provide a picture of the
society

The Egyptian "Book of the Dead" reflects the moral and
spiritual values of that society.

CONTENT AREA AND TOPIC

Contributions have helped to
shape present ways of life

Art and literature reflect
the society

SKILLS AND KNOWLEDGE

Egyptians made numerous contributions, including a system
of writing, sculpture, and architecture.

Egyptian art in stone reflects the wealth of society.

HOW OTHER CIVILIZATIONS DEVELOPED

Time: 15 weeks

Required: Select two of the following; India; China;
Pre-Columbian America; Africa

CURRENT AFFAIRS

Current affairs are studied to see how they affect children's
lives and to assist in developing civic responsibility.

WORK STUDY SKILLS

Information on a topic is compared to discover agreement and
disagreement. Fact and opinion are differentiated.

The need to change a conclusion in the light of evidence is
recognized.

Information is presented in various forms: graphs, pictures,
vocal, written.

Vocabulary of time expression is used: era, century, pre-
historic, etc.

Grade 7

MINIMUM TEACHING ESSENTIALS

Art	282
Mathematics	287
Music	291
Physical Education	292
Science	296
Social Studies	303

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

DRAWING

**pp. 4-5
Time: 6-9 Weeks
The Contour Line

A sketch shows an economy of line.
Lines define and enclose space.
Objects can be drawn with an unbroken line that flows
around the outside edges and inner forms of the object.
A line can record a rhythm.
Lines can depict the form of any growing thing.
Accurate proportion is not essential.

PAINTING

**pp: 10-11
Time: 6-9 Weeks
Changing Colors

Pastel tones are created by adding colors to white.
A darker hue is obtained by adding a touch of black to
any color.
Repetition of colors gives unity to a composition.
Contrasting colors make ideas clear.
Free form shapes, simple closed curves, and patterned
areas are produced by different combinations of colors.

DESIGNING IN TWO DIMENSIONS

**pp: 23-24
Time: 4-6 Weeks
The Abstract Collage

Composition, color, texture, and pattern are elements in
two-dimensional design.
Magazines are a source for colored papers and cutouts.
Paper shapes can vary in size, overlap, contrast, and be re-
peated.
Background shapes and colors are part of the design.
All parts contribute to the effectiveness of the design.
Collages may be used to decorate other surfaces, such as
boxes.
A collage may be finished with shellac or varnish.

CONTENT AREA AND TOPICSKILLS AND KNOWLEDGEDESIGNING IN THREE DIMENSIONS

**pp: 34-35

Time: 6-9 Weeks

Abstract Forms in Space

Constructing with Wood
and Plastics

Wood and/or plastic pieces vary in shape and size.
Arrangements are tried before gluing parts in place.
Forms or structures thrust upward into space.
Light and shadow create pattern within the structure.
Paint adds color, pattern, and texture to the design.

All-purpose white glue is essential.
Materials consist of spools, pop sticks, pieces from
discarded toys and games, scrap wood, wire, and plastic
pieces in assorted sizes and shapes.

PRINTMAKING

**pp: 46-48

Time: 4-6 Weeks

The Monoprint

Glass, hardboard, wood, or plastic can serve as a printing plate.
Water-soluble ink is used on the printing plate.
A rubber roller is a necessary tool.
Cut or torn pieces of paper and/or fabric create design and
texture for the paper rubbing.

Patterning with Objects

The repetition of shape creates a pattern.
Found objects provide interesting shapes and textures.
Stamping an inked object on paper produces regular rows or
irregular rhythmic patterns.

Relief Printing

Shapes cut from cardboard or other heavy paper can be glued
to background board.
Felt, yarn, string, or other flat objects can be used in design
of print.
In order to print, cardboard and fabric plate must be inked.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

POSTERMAKING

**pp: 58-59

Time: 4-6 Weeks

Combining the Symbol and
the Message into the Design

Words and symbols combine to communicate ideas.
Posters announce events, advertise a personality, or publicize ideas.
Shapes or strips cut from construction paper or overlays of transparent papers add emphasis and color.
Mixed media are often used in poster designs.
Poster design is striking in its simplicity.
The illustration and the hand-lettered message are closely related.
The message or slogan in a poster is brief.
A trade mark is a design.
Printmaking techniques can be used to duplicate a poster.

THE PUPPET PERFORMANCE

**pp: 66-67

Time 6-8 Weeks

Performance and Integration
of the Arts

Sock, Stick, and
Shadow Puppets

Puppet characters express human emotions and feelings.
Puppets, stage, and scenery present problems in design.
Art and music, as well as the dramatic and language arts, are integrated in the puppet performance.

The movement of the sock puppet suggests various human or animal forms.
Exaggerated details make the sock puppet more attractive.
Puppets can take the form of a simple figure on a stick or an elaborate construction with several movable parts.
More than one stick is used to manipulate movable parts.
A strong outline or contour makes shadow puppets more dramatic.
Shadow puppets frequently have moving parts.
The light source (slide projector) is placed in back of the puppets so that they cast shadows on the screen.

CONTENT AREA AND TOPICSKILLS AND KNOWLEDGEPHOTOGRAPHY

**pp: 76-77

Time: 4-6 Weeks

Montage

Photographs are cut up and combined to illustrate a theme for a montage.

Photographic printing paper can be "painted" upon with brush and photographic developer.

Photogram

Objects arranged on photographic paper produce photogram images.

Opaque objects placed on coated blueprint paper and exposed to sunlight produce images.

Light Show

Color slides of random subject can be arranged in a unique sequence.

Projected images from two or more slide projectors can be combined.

Theatrical gelatins or colored cellophanes, placed in the path of light, color the image on the screen.

The addition of recorded music, or live sound, creates a multimedia effect.

FILMMAKING

**pp: 86-87

Time: 4-6 Weeks

Equipment

Super 8 cameras use 8mm film.

Students share equipment the group will use to make a film.

Films are about subjects such as places, events, feelings, and ideas.

The overall theme provides unity when the segments are joined in the completed film.

Sequence and Editing

Not all scenes are used in a completed film.

Scenes are cut and arranged to make an interesting visual statement.

Films require editing.

Sound can change the impact and meaning of a film.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

COSTUME DESIGN

**pp: 96-97

Time: 4-6 Weeks

Design Sources

Pattern Effects

Variety and beauty of design are found in the dress of different cultures.

Works of art can serve as a source for design ideas.

Fabrics exist in a wide variety of patterns, such as prints, plaids, checks, and stripes.

Patterned and plain materials are combined in a complete outfit.

Some patterns seem to exaggerate size while others seem to minimize size.

Pattern design affects the total look of a costume.

Line direction is an important aspect of pattern design.

Fabric design can be based on a motif.

MATHEMATICS GRADE 7

CONTENT AND AREA TOPIC

SKILLS AND KNOWLEDGE

NUMBER AND NUMERATION

Place value concepts to billions
 Reading and writing numerals through 10 billions
 Exponential notation through 10^9 , e.g., $10^9 = 1,000,000,000$
 Rounding whole numbers to the nearest million
 Rounding to nearest dollar, dime, cent
 Meaning of prime number and composite number
 Ratio
 Factors, e.g., factor $\times$ factor = product; greatest
 common factor
 Positive and negative numbers

OPERATIONS AND APPLICATIONS:
WHOLE NUMBERS

Addition and subtraction of whole numbers through ten-billions
 Properties of addition
 Estimation: checking for reasonableness of an answer
 Computing the product of any whole number and a number named
 by a three-digit numeral
 Properties of multiplication
 Division of whole numbers (divisors to 99)
 Problem solving involving addition, subtraction, multiplication
 and division
 Meaning of divisibility
 Multiples, common multiples, least common multiple

Note: Minimum Teaching Essentials for Grade 7 are based on the new Scope and Sequence for Grades 7 and 8.
 This document is in the final stages of development prior to printing. It is not possible at
 this time to cite page references.

CONTENT AND AREA TOPIC

OPERATIONS AND APPLICATIONS:
FRACTIONAL NUMBERS

Equivalent fractions; comparing fractions
Simplest name for a fraction
Fraction as an indicated division
Addition and subtraction of like and unlike fractions and mixed numerals
Multiplication of fractions and mixed numerals
Meaning of reciprocal
Division of fractions and mixed numerals
Problem solving involving operations with fractional numbers

OPERATIONS AND APPLICATIONS:
DECIMALS

Decimal fractions through ten-thousandths
Equivalent decimals; comparing, ordering, rounding decimals to the nearest thousandths
Relationships between decimals and fractions
Addition and subtraction of decimal numerals
Multiplication of decimal numerals
Division of decimal numerals
Problem solving involving operations with decimal numerals; dollars and cents
Banking and consumer skills

OPERATIONS AND APPLICATIONS:
PERCENT

Percent as a ratio
Relationships among percents, fractions, decimals
Finding a percent of a number
Finding what percent one number is of another
Using percent in problems involving commission, discount rates, simple interest, sales tax, comparing prices

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

GEOMETRY

Concepts and terms: point, space, line, line segment, ray
 Lines: intersecting, parallel, perpendicular
 Polygons: triangle, parallelogram, rectangle, square, rhombus,
 trapezoid, pentagon, hexagon, octagon
 Space figures: rectangular prism, cube, cylinder
 Circle: semicircle, radius, diameter, center, central angle,
 arc, chord, circumference
 Angles: vertex, right, acute, obtuse, straight

MEASUREMENT

Approximate nature of measurement
 Angle measure: degrees, use of protractor
 Area: rectangle, square
 Volume: rectangular prism; cube
 Linear: measuring perimeter, circumference, concept of
 π (Pi)
 nonstandard and standard units of measure
 Metric measure: length, weight, capacity, temperature;
 prefixes; relationship among the units
 within the metric system; computing with
 metric measures

ALGEBRAIC CONCEPTS

Meaning of equality; equation; variable
 Deriving equations from verbal problems
 Solving equations:
 $x + 4 = 12$ $3x = 15$
 $x - 5 = 3$ $\frac{x}{5} = 9$
 Using formulas
 Order of operations
 Deriving a table of values from a formula

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

GRAPHS; STATISTICS

Gathering and organizing data
Arithmetic mean (average); median, mode
Drawing, reading and interpreting line graphs, bar graphs,
circle graphs and pictographs

OPERATIONS AND APPLICATIONS:
INTEGERS

Comparing and ordering positive and negative numbers
Addition of integers

MUSIC GRADE 7

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

MAJOR ELECTIVE

Vocal Techniques

Quality vocal music is based on a number of vocal techniques, e.g., breathing, posture, direction, diction, interval singing. The song repertoire should contain both unison singing and part singing (two- and three-part songs), traditional and popular. Folk songs, popular songs and folk rock songs also provide the basic material for musical development

The School Chorus

A school chorus plays an important role in the school.

MAJOR ELECTIVE

Bands, Orchestras and
Instrumental Music

Bands, orchestras and instrumental music classes are important elements in a school's total curriculum. Instrumental music classes provide fundamental instruction in the techniques of playing. Bands, orchestras and choruses are important for the talented musicians and for total student population by performing for assemblies, school concerts, graduation and sporting events.

MUSIC APPRECIATION

Basic Music Elements

Music appreciation touches on all the components of music education, e.g., listening, music reading, rhythm and melodic notation, music history, singing and instrumental music experiences.

CONTENT AREA AND TOPICSKILLS AND KNOWLEDGEDANCE

SQUARE DANCE

Basic Steps and Movements

Hand turns, swing left and right, forward and back, promenade, corners and partners position, honor your partner, do-si-do, allemande, grand star, ladies chain, right and left through, pass through, California twirl, lead through, buzz steps, chasse, grapevine twist, dixie chain

INDIVIDUAL, DUAL AND LEISURE-
TIME SPORTS

GYMNASTICS

Parallel Bars

Dips, cross rest to straddle seat, straddle travels, front and rear dismounts

Uneven Parallel Bars

Mount to arm support, straight arm support, squat stand mount, chinning

Horizontal Bar

Pull-ups, skin the cat, leg raise to tuck, forward and backward swing, swing back dismount

Side Horse

Squat vault, front vault, front rest support, back rest support, feint

Long Horse Vaulting

Jump to squat, walk to end, jump off

Jump to straight leg stand, walk to end, jump off

TUMBLING AND FLOOR EXERCISES

Rope Climbing

Forward roll, backward roll, combination rolls, back bend front scale

Handball

Skin the cat, crab hang, inverted hang, basic climbing position, climb one-quarter way up

Paddle Ball

Stance and footwork, basic strokes, serve, basic shots

Grips, swings, stance and footwork, basic shots, serves

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

INDIVIDUAL, DUAL AND LEISURE -
TIME SPORTS (continued)

TENNIS

Basic Strokes

Forehand and backhand - grip, stance and swing serve -
grip, stance, ball and racket coordination

TRACK AND FIELD

Sprints

Starts - Indoor and outdoor
Running form - Use of arms, stride

Relay Racing

Baton pass - visual

Long Jump

Standing long jump

High Jump

Scissors

TEAM SPORTS

BASEBALL - SOFTBALL

Basic Skills

Catching - low and high balls
Throwing - Overhead snap, infielder's sidearm, underhand
toss
Fielding - flyball and ground ball
Pitching (softball) - fast ball, slow ball
Batting - straight away
Base running - run to first base and turn, steal
Defensive skills - infield and outfield

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

PHYSICAL FITNESS, CONDITIONING
AND BODY MECHANICS

CALISTHENICS

Understanding of role of calisthenics as a daily remedial, warm-up and conditioning activity

Isotonic Exercises

Push-ups, squat thrust, sit-ups, jumping jacks, modified pull-ups, running in place, knee raise

Isometric Exercises

Contractions held for six to ten seconds with two-second rests between contractions
Press hands together overhead, hands hooked at chest-pull apart, pressing palms against hips, sitting position, press hands against floor

WEIGHT TRAINING

Understand value of resistive exercises in achieving physical fitness high pull-ups; two-arm standing curls; two-arm standing press

CIRCUIT TRAINING

Pull-ups, squat thrusts, step-ups, alternate presses, sit-ups, dips on parallel bars, shuttle run, barbell curl; running in place

PHYSICAL FITNESS TESTS

Conduct the annual physical fitness test and encourage students to achieve physical fitness levels necessary to pass National Standardized Tests.

AAHPER Youth Fitness Tests

Pull-ups, sit-ups, flexed-arm hang, shuttle run, long jump, 50-yard dash; 600-yard walk-run

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

TEAM SPORTS

BASKETBALL

Basic Skills

Catching -- Above and below the waist
 Passing -- Two-hand chest, two-hand bounce, underhand, hand-off
 Shots -- Layup right and left, one-hand set, foul
 Dribbling -- Straight-away, change of hand
 Defensive skills -- Basic stance, sideward shuffle

SOCCER

Basic Skills

Offensive skills -- Give and go
 Dribbling -- Inside, outside of foot
 Heading -- Forward
 Throw-In -- Feet together, one foot advanced
 Tackling -- Basic stance, one leg tackle
 Kicking -- Inside of foot straight and sideways, short push pass
 Trapping -- Wedge, chest
 Goal Keeping -- Stance and catching

COMBATIVES

WRESTLING

Basic Positions

Top and bottom referees positions

Holds and Counters

Far ankle, far-arm breakdown to half nelson or crotch pin
 Side roll to counter, bridge and turn into counter
 Sit-out and turn-in to counter sit-out
 Far ankle drive to waist lock
 Snap-back counter to sit-out and turn-in
 Wing and step over counter to half nelson
 Near arm and waist lock
 Flatten-out counter for side roll
 Head pry level
 Rock of Gibraltar

SCIENCE GRADE 7

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

CHEMISTRY

ELEMENTS

*pp: 1-21

Time: 12 periods

The Study of Matter

Matter is anything that has weight and occupies space. The states of matter are solid, liquid, and gas. Change in state of matter is accomplished by adding and removing energy and occurs at specific temperature.

Matter Can Be Identified
By Its Appearance

Characteristics and behavior of different substances are known as properties. The study of properties helps to identify different substances.

The Building Blocks of
Matter are Elements

An element is the simplest substance which still retains the properties of that element. They occur as solids, liquids, and gases. Elements are classified as metals and non-metals. The properties of metals and non-metals aid in identifying these substances.

COMPOUNDS AND MIXTURES

*pp: 22-48

Time: 12 periods

Combining Elements to
Form Compounds

Elements combine in definite proportions to form new substances called compounds. The properties of compounds are different from those of the elements that make up the compounds.

*SCIENCE - GRADE 7, 71-72 Series, #2

SCIENCE GRADE 7

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Chemical and Physical Change

The smallest part of a compound that still has the properties of the compound is a molecule.

A physical change is a change in size, shape, or state.
A chemical change results in the formation of a new substance with new properties.

The Characteristics of Mixtures

Mixtures consist of two or more substances each of which retains its own properties.

Mixtures involve a physical change only; there is no definite ratio or proportion between the amounts of each substance.

The parts that make up a mixture can be separated by various techniques.

PHYSICS

ELECTRICITY

*pp: 87-108

Time: 10 periods

Electric Current

An electric current is a flow of electrons from the negative to positive terminals.

Laboratory investigations dealing with series and parallel circuits compare the different paths each follow.

Resistance

The resistance of a wire carrying an electric current is related to its length, thickness, and composition.

Measurement of an Electric Current

The voltmeter, ammeter, and the ohmmeter are useful instruments in measuring the electromotive force, the current, and the resistance of electrical circuits,

SCIENCE GRADE 7

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

MAGNETISM

*pp: 109-136

Time: 12 periods

The Characteristics of
Magnets

Magnets are made of iron, nickel, and cobalt.
Magnets are strongest at the poles. A magnetic field surrounds
all magnets.
Like magnetic poles repel, unlike poles attract.

Making and Destroying
Magnets

Magnets may be created by electrical induction or contact
with other magnets.
Magnets may be destroyed by heating, hammering, or rubbing in
different directions.

Earth's Magnetic Field
and The Compass

Because of the nature of the earth's core, the earth acts as
a huge magnet.
A magnetic compass responds to the earth's magnetic field and
helps us determine direction.

Electromagnetism

A coil of wire carrying an electric current and surrounding a
soft iron core will induce a temporary magnetism in the
core.
The strength of an electromagnet depends on the number of turns
of wire, the amount of current, and the size of the iron core.
Electromagnets are used in bells, buzzers, loudspeakers, and scrap
iron lifts.

Creating An Electrical
Current

The movement of a permanent magnet in a coil of wire induces an
electrical current.

SCIENCE GRADE 7

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

HEAT

*pp: 137-150

Time: 6 periods

Heat Affects the Size of
Matter

When heated, matter will expand.

Thermometers (Celsius and Fahrenheit) are used to measure
temperature.

Heat Can Be Transferred

Heat may be transferred by radiation, conduction, and convection.

BIOLOGY

*pp: 161-176

Time: 8 periods

LIVING THINGS

Life Activities

Living things carry out a variety of life functions which include
digestion, respiration, circulation, movement, response,
growth and reproduction.

The microscope helps us to study living things too small to be
seen with our eyes.

Identifying the Needs of
Living Things

Plants and animals have basic needs such as food, water, air,
and a proper environmental temperature to carry on life
activities.

Investigations with plant and animal organisms confirm
similarities of life functions of all living things.

SCIENCE GRADE 7

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

THE STUDY OF THE CELL

*pp: 177-194

Time: 7 periods

The Structure and Function
of Cells

Living things are composed of one or more cells.
Cells contain small units which have specific functions.
A study of plant and animal cells shows they differ in many ways.

Multicellular Organisms

In higher forms, cells become specialized to perform specific functions.

Cells are Organized Into
Tissues and Organs

A group of cells, similar in structure and function, is called a tissue.
Different tissues are organized to work together to form an organ.
Each body organ has a specific function to perform.

Organ Systems

The study and understanding of the major organ systems help us to identify life functions and maintain good health.

NUTRITION

*pp: 196-222

Time: 10 periods

Foods Contain Useful
Substances

Food contains useful substances called nutrients. The nutrients required by living things include carbohydrates, proteins, water, minerals, and vitamins.
Specific tests may be performed to identify nutrients in different foods.

SCIENCE GRADE 7

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Nutrients Help to Maintain
Life Functions

Green plants synthesize the nutrients necessary for life activities by a process called photosynthesis involving the use of chlorophyll and sunlight.

The nutrients supply us with materials for growth, repair, and maintenance of good health.

A Balanced Diet

Planning a balanced diet is one that includes all necessary nutrients in sufficient quantities to maintain good health.

EARTH SCIENCE

ROCKS AND MINERALS

*pp: 230-255

Time: 12 periods

The Structure of
the Earth

The earth is made up of four layers: crust, mantle, outer core, and inner core. Each layer has certain characteristics and composition.

The Composition of the
Earth's Crust

The earth's crust is made up of rocks and minerals. Rocks may be identified by the minerals present in the rocks. Various techniques and properties are used to identify different minerals. These include color, luster, hardness, streak, density, and cleavage.

Formation and Identification
of Igneous, Metamorphic, and
Sedimentary Rocks

The methods by which rocks were formed, their mineral content composition, crystal size, appearance, and properties provide a means of classification and identification of various rocks.

SCIENCE GRADE 7

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

THE CHANGING EARTH

*pp: 258-285

Time: 12 periods

Factors Which Cause the
Earth's Surface to Change

The surface of the earth is constantly being worn down physically and chemically by wind, water, plants and animals, chemicals, and glaciers.

The study and understanding of processes of erosion, weathering, freezing and thawing, dune migration, wave movement, and glacial movements help to explain how the earth's surface is worn down.

Building Up the Earth's Crust

Pressure, heat, and movements of the earth's crust cause folding and formation of mountains.

lava flows from volcanoes and molten magma within the earth also help to build up the surface of the earth's crust.

THE IMPORTANCE OF FOSSILS

Fossil Remains

Fossils are the remains or evidence of plants and animals that lived on this earth in the past.

Fossils are formed from the hard parts of plants and animals, impressions or casts left by them, or by replacement of the original structure with minerals (petrification). Some insects and animals have been trapped in tar pits and resin which have preserved their remains.

The identification of various fossils and a comparison with present forms provide us with evidence of evolutionary change, past climates, environmental conditions, and movements of the earth's surface.

Fossil Fuels

Coal and petroleum are the end products of a process which changed plants and marine organisms into fuels.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Content area covers the Colonial Era to about 1890. Urban America in the 20th century should be taught in the first half of grade 8.

WHY PEOPLE MOVED TO THE NEW WORLD

Time: 6 weeks

Voluntary movements of people to the New World

Unfavorable political, social and economic conditions in Europe caused people to move voluntarily to the New World.

Involuntary movements of people to the New World

Africans, prisoners and some indentured servants came to the New World involuntarily. Ethnic groups that settled in colonial America brought with them a cultural heritage.

HOW PERMANENT SETTLEMENTS WERE FORMED IN THE NEW WORLD

Time: 7 weeks

Bases for settlement

People located settlements based on many factors: nearness to water and transportation, natural resources, fertile soil and opportunities for trade.

Developments in the Thirteen Colonies

Self-governing colonies, proprietary colonies and royal colonies were similar and different in the nature of government and degree of political freedom.

HOW THE THIRTEEN COLONIES BECAME ONE NATION

Time: 7 weeks

<u>CONTENT AREA AND TOPIC</u>	<u>SKILLS AND KNOWLEDGE</u>
The American Revolution	A series of ideological, political and economic actions and counteractions by Americans and British brought the colonies and England to a state of war.
Factors affecting the conduct of the Revolutionary War	The strengths and weaknesses of England and the colonies; their leaders, strategies, heroes from different minority groups, relationships with other countries, and spirit determined the conduct and results of the war.
Results of the Revolution	The American Revolution resulted in independence, territorial expansion, an extension of democracy, and an inspiration to peoples in other lands.

HOW AMERICA GREW IN A CHANGING
POLITICAL CLIMATE

Time: 20 weeks

The Frontier Moves West	Explorers, pioneers, settlers, and townspeople developed frontier communities through individual and cooperative enterprise.
Jeffersonian Democracy (1800-1824)	The Democratic-Republic defeated the Federalists in the Election of 1800. Americans peacefully expanded (Louisiana Purchase), fought a war (War of 1812), strengthened the nation (Era of Good Feeling), and weakened the nation (sectional differences).
Jacksonian Democracy (1828-1848)	Jackson involved the Presidency in sectional struggles over the tariff, the bank and internal improvements. The era was one of expanded democracy and reform. More people participated in the democratic process. Reformers attacked sexism and slavery. Improvements in education and in treatment of the sick and insane were made.

<u>CONTENT AREA AND TOPIC</u>	<u>SKILLS AND KNOWLEDGE</u>
Manifest Destiny and the extension of slavery	As the nation's territory grew (Texas, Mexican Cession, Oregon), so, too, did sectional conflicts between slave and free states.
The Civil War	The fundamental causes of the Civil War lay in political, economic, and social differences among the sections. The Kansas-Nebraska Act, Dred Scott decision, split in the Democratic Party, Election of 1860, and the Firing on Fort Sumter were highlights of the road to Civil War. The human, material, and spiritual costs of the war were great. The Civil War brought an end to slavery.
Reconstruction	Conflicting ideas and methods of reconstructing the nation divided Americans. The Reconstruction Era in the South resulted in both achievements and long-lasting problems.
Major trends in Post-Civil War America	In the Post-Civil War period, the frontier disappeared. America again accepted waves of immigrants. Americans borrowed and developed scientific and technological expertise to improve the use of their resources. They developed steam power and improved steel-making and machinery production. They built roads and railroads; they built factories and residential buildings; they produced a vast variety of consumer goods. This American Industrial Revolution led to new forms of business, urban development, transformation of the American farm, and positive and negative effects on all groups in American society.
<u>CURRENT AFFAIRS</u>	Current affairs are studied to see how they affect children's lives and to assist in developing civic responsibility.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

WORK STUDY SKILLS

The Readers' Guide is used to find articles in periodicals.
Parliamentary procedures are used to conduct meetings.
Map symbols and directions are interpreted on maps.
Related events are placed in chronological order.
Characteristics of geographic regions are recognized.
Footnotes and cross references are used for gathering and
collating information.
Evidence of propaganda is detected and analyzed.

Grade 8

MINIMUM TEACHING ESSENTIALS

Art	308
Health Education	315
Mathematics	319
Music	323
Physical Education	324
Science	329
Social Studies	337

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

DRAWING

**pp: 6-8

Time: 6-9 Weeks

The Contour Line

Size, Shape, and Proportion

A portrait or object can be described by a continuous uninterrupted line.

A line may follow outside and inside edges.

Proportions can be exaggerated to achieve special effects. A variety of geometric shapes can be used as elements in design.

People, objects, rooms, and landscapes possess geometrical shapes.

Overlapping shapes add interest to a composition.

Varying the sizes of shapes and repeating them enhances the design. Size and position of an object indicate its importance.

PAINTING

**pp: 10-12

Time: 6-9 Weeks

Color and Movement

Patterns of color can express movement and rhythm in painting. Broad strokes of color which create lines and shapes may suggest a particular movement.

A painting need not portray a recognizable object.

A painting can illustrate an idea or abstraction, such as happiness, excitement, or speeding.

Patterns of dark and light are important elements in the design of a painting.

ART GRADE 8

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

DESIGNING IN TWO DIMENSIONS

**pp: 28-29

Time: 4-6 weeks

Tie Dyeing

Tie dyeing and batik employ concepts of color and design. Knotting or folding the cloth and tying the folds in place are required to assure dry areas when the cloth is immersed. Random color effects, or design patterns, are created by the dye bath.

Patik

Melted wax will impregnate cloth. Crinkling the cloth creates cracks in the waxed surface. The dye bath penetrates the cracks to color the cloth. The trace of wax that remains is the characteristic of batik fabric. Accidental effects add interest to designs.

DESIGNING IN THREE DIMENSIONS

**pp: 38-40

Time: 4-6 weeks

Modeling with Clay

Clay is a plastic material; its shape and texture can be manipulated. Clay coils are arranged according to design of construction. Abstract forms suggest flight, conflict, rhythm, etc. Other parts may be added to the main lump of clay by scoring and the use of slip. Compact, sturdy shapes survive firing and glazing. Tools create texture and refine shapes.

Other Ways to Model

Fabrics dipped in starch or plaster of paris over a support of wire harden to form a sculpture. Papier mâché is used to model small pieces that harden when dry.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

PRINTMAKING

**pp: 48-52

Time: 4-6 Weeks

Making and Printing
a Stencil

Relief Printing

Screen Printing

Cutting a shape from lightweight cardboard produces 2 stencils; the cutout, or positive shape, and the background, or negative shape.

Stippling, spattering, or rolling will all produce an image from a stencil.

A stencil can be used many times to repeat an image.

Different stencils can be used together to create overlapping designs.

Linoleum cutting requires straight chisels, V, and U-shaped gouges.

Cut-away areas do not print.

Ink is applied from the inking slab onto the linoleum block with a roller.

Varying the pressure on the paper, the amount of ink on the block, or the texture of the paper changes the effect of the print.

Ink is forced through a tightly stretched mesh with a squeegee. A stencil adhered to the underside of the mesh blocks the ink. Color is transferred through the open or unblocked areas of the screen or mesh to the paper placed below.

The blocked area remains the color of the original paper.

The frame for the screen is made from wooden canvas stretchers, a discarded picture frame, or is constructed from heavy cardboard.

Printing paper is always larger than the stencil so that wet prints can be handled and so that margins can be trimmed.

CONTENT AREA AND TOPICLETTERING, POSTERMAKING,
AND ADVERTISING

**pp: 60-62

Time: 4-6 Weeks

Lettering and Meaning

Symbols and Communication

THE PUPPET PERFORMANCE

**pp: 65-70

Time: 4-6 Weeks

The Puppet and the
Spoken Word

The Puppet Actor

The Puppet Play

SKILLS AND KNOWLEDGE

Different designs emphasize the decorative, psychological, and communicative potentialities of the lettered word. The style of lettering can suggest the meaning of a word. The expressive quality of color adds to the impact of meaning. Unusual lettering attracts attention.

Letters or words can create an overall pattern. Music employs many different symbols to communicate meaning. Television commercials serve as models for advertising ideas. A symbol can be associated with an advertising slogan. An advertisement or commercial should have wide appeal. Signs for shops are advertisements. A free-standing display in three dimensions can advertise a product or announce an event.

The puppet's action is coordinated with the puppet's dialogue. Puppets react to the dialogue of other puppets. Dialogue may be improvised on stage. Puppets are used in conversation, discussion, reporting, story telling as well as in the performance of a play or skit.

Puppets on stage are actors. Puppets express a variety of feelings, ideas, and moods. Nature of speech combined with dramatic action express the puppet's character. Puppets are used to enliven other areas of the curriculum.

Groups of students work on each aspect of the puppet performance. Original scripts, plays, or stories are adapted for the puppet characters. Sound effects and music are part of the performance.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

PHOTOGRAPHY

**pp: 78-80

Time: 6-8 Weeks

Creating Original Images

The Photograph

Magic markers create new images on color slides.
A slide projector casts the shadow of a cut-out design or three-dimensional figure on a screen.
Scratching designs on the coated sides of negatives creates new images.
A collage made from tissue paper, thread, cellophane, and other bits of paper-thin material can be placed in a slide mount and projected.

Photographs communicate ideas and feelings.
Photographs reveal the individual's unique and personal way of seeing.
Photographs record and comment upon nature, family, friends, school, community, and things.

The Camera Lens

The camera lens focuses on distant and close objects.
Selective focus is controlled by changing the aperture (opening) of the lens.
Focusing the camera at something close has an effect upon the background.
Focusing the camera at something distant has an effect upon the foreground.

The Camera Viewfinder

The viewfinder frames the subject to be photographed.
The distance of the viewfinder from the eye changes the field of view.

The Camera Film

Black and white prints communicate a different mood from color prints or color slides.

CONTENT AREA AND TOPICSKILLS AND KNOWLEDGEFILMMAKING

**pp: 88-90

Time: 4-6 Weeks

The Field of View

Animation

Filming is performed from different points of view. Paintings or drawings can be filmed to create a sequential story.

The camera can be moved in a continuous, slow, smooth sweep. Using a zoom lens, the camera remains stationary while the field of view changes.

Sound can be recorded as it occurs in a natural situation, such as traffic noises or cheers at a ball game.

Many forms and more varied kinds of motion are possible in animation.

The moving image on the screen is an illusion.

A succession of photographs of an object in slightly different positions is the basis of an animated film.

Still material is animated by shooting two or three frames in one position before the subject is placed in a new position and photographed again.

The camera is in a fixed position while the objects are moved between takes.

Slow-motion effects are achieved by exposing more than three frames before placing the object in a new position.

Filming indoors requires photographic lights set on stands.

Cartoon figures, magazine cutouts, drawings, puppets, and sculpture can be animated.

Live and animated motion can be combined on one film.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

COSTUME DESIGN

pp: 96-98

Time: 2-4 Weeks

Combinations and the Total Look

The Elements of Design

Fabrics, colors, patterns, and textures are combined to express individuality.

The effect of colors, textures, and patterns can be demonstrated by draping fabrics on the figure.

Combining different fabrics and textures affects the total look of a costume.

Costumes are designed.

Various shapes, colors, patterns, and textures are elements in costume design.

Different types of patterns, textures, and colors are appropriate for different occasions and seasons.

Size, shape, function, and construction are considered in the design of accessories.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

MENTAL HEALTH

*pp. 9-14

Also, see FAMILY LIVING INCLUDING
SEX EDUCATION

Time: 7 hours

Personality development is influenced by hereditary and environmental factors.

Adolescent needs are satisfied in a variety of ways.

Adolescence is a period of striving toward emotional and social adjustment.

DRUG AND SUBSTANCE ABUSE

*pp. 32-44

Time: 13 hours

Proper drug use is taking a substance for its intended purpose and in the appropriate amount, frequency, strength, and manner prescribed.

Drug abuse is the use of any drug to the point where it interferes with an individual's physical, social, and emotional well-being.

There is a variety of drugs which are used and abused by individuals.

There is a variety of individual and social factors that influence misuse and abuse of drugs.

There are ways to cope with social and emotional pressures of life other than through use of drugs.

A preventive program involves the cooperative efforts of all segments of the community.

Government agencies have specific responsibilities to regulate and control the use of drugs.

Treatment and rehabilitation programs aim to help drug abusers become drug free and capable of assuming responsible roles in the community.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

ALCOHOL

*pp. 82-86

Time: 6 hours

Historically, alcohol has been used in a variety of ways and for different purposes.

The consumption of alcoholic beverages affects the body in many ways.

There is a relationship between consumption of alcoholic beverages and behavior and personality.

Alcohol abuse and alcoholism affect the individual, the family, and the community.

SMOKING

*pp. 104-112

Time: 6 hours

Smoking is a critical health problem.

Smoking has a harmful effect on the lungs and heart.

There are social and psychological factors that contribute to the smoking habit.

DISEASE PREVENTION AND CONTROL

*pp. 130-141

Time: 10 hours

Communicable diseases are caused by infectious agents transmitted from one person to another either directly or indirectly

Prevention and control of communicable diseases are related to blocking pathways of infection, improving body resistance, and providing early treatment.

Included among the important communicable diseases that continue to be a challenging community problem are venereal diseases.

Chronic ailments such as heart disease, cancer, and diabetes are the leading causes of disability and death.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

NUTRITION

*pp. 176-191

Time: 5 hours

Nutrition affects one's physical growth and development.
Nutrition affects physical growth and appearance by its influence on the body.
Nutrition affects personality, vigor, and ambition.
Good nutrition requires a sufficient quantity of nutrients for proper body functioning.
Good nutrition requires a proper balance of nutrients.
Good nutrition is promoted by establishing good food habits and good attitudes toward food.

CONSUMER HEALTH

*pp. 216-222

Time: 7 hours

Good judgment in the selection and utilization of health services and products enhances health and saves money.
Health quackery deprives the consumer of adequate health protection.
Advertising may mislead individuals in their selections and use of health information, products, and services.
Governmental and professional groups protect the public from fraudulent health practices.

ENVIRONMENTAL AND COMMUNITY HEALTH

*pp238-249

Time: 7 hours

One's health and well-being are influenced greatly by environment
All pollution, a serious health problem, is a product of increased population and heavy industrialization.
Water pollution, a menace to our health and a threat to the economy, contributes to the ever-growing problem of water shortage.
Widespread use of chemicals in combating pests has created additional environmental health hazards.
Noise pollution has become an important environmental health problem.
Continuous use of radiation or radioactive material presents numerous potential health hazards.

HEALTH EDUCATION GRADE 8
(Intermediate - Junior H. S.)

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

SAFETY AND FIRST AID

*pp. 270-274

Time: 11 hours

Potential for accidents exists everywhere in man's environment.
Behavior contributing to accidents may be the results of imitation,
failure to follow directions, carelessness, or inability to
recognize hazards.
Individuals should be prepared to act effectively in case of accident.

CONTENT AND AREA TOPIC

SKILLS AND KNOWLEDGE

NUMBER AND NUMERATION

Place value concepts through hundred billions
Read and write numerals through hundred billions
Exponential notation through 10^{11}
Rounding whole numbers to the nearest billion
Factors: greatest common factor, factor table
Prime and composite numbers

OPERATIONS AND APPLICATIONS:
WHOLE NUMBERS

Addition and subtraction of whole numbers through hundred billions
Properties of addition
Estimation - checking for reasonableness of an answer
Computing product of any whole numbers
Properties of multiplication
Division of whole numbers
Problem solving involving basic operations, banking and consumer skills

OPERATIONS AND APPLICATIONS:
FRACTIONAL NUMBERS

Meanings of a fraction
Equivalent fractions
Comparing and ordering fractions
Simplest form of a fraction
Addition and subtraction of fractions and mixed numerals
Meaning of reciprocal
Multiplication and division of fractions and mixed numerals
Problem solving involving operations with fractional numbers

NOTE: Minimum Teaching Essentials for Grade 7 is based on the new Scope and Sequence for Grades 7 and 8. This document is in the final stages of development prior to printing. It is not possible at this time to cite page references.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

OPERATIONS AND APPLICATIONS:
DECIMALS

Decimals through hundred-thousandths
Equivalent decimals; comparing; ordering
Rounding decimals to the nearest whole number, nearest tenth,
nearest hundredth, nearest thousandth
Relationships between decimals and fractions
Expressing a fractional number in decimal form, e.g.,
 $\frac{3}{8} = .375$
Addition, subtraction, multiplication, and division of decimal
numerals
Terminating decimals; repeating decimals
Dollars-and-cents system; unit pricing
Problem solving involving operations with decimal numerals

OPERATIONS AND APPLICATIONS:
PERCENT; RATIO; PROPORTION

Concept of ratio as an ordered pair of numbers
Concept of rate
Concept of proportion; scale drawing
Problem solving involving ratio and proportion
Finding a percent of a number; finding what percent one
number is of another
Finding percent of increase, discount, attendance
Percents greater than 100% and less than 1%
Simple interest, profit and loss, income tax
Installment buying, sales tax, discount
Commission, profit and loss

GEOMETRY

Concepts and terms applied to: lines, angles, polygons,
space figures
Congruence and similarity
Angles: right, acute, obtuse, straight, vertical, ad-
jacent, corresponding, complementary, supplementary,

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

MEASUREMENT

measuring angles; sum of angle measures
Triangles: classification by measures of sides, angles;
Pythagorean formula

Approximate nature of measurement
Linear measure: use of ruler, perimeter of polygons,
circumference of a circle
Area of parallelogram, triangle, circle; (verbal problems in-
volving area)
Surface measurement: rectangular prism, cube
Volume of rectangular prism, cube, right circular cylinder
Metric measure: length, weight, capacity, temperature

ALGEBRAIC CONCEPTS:
EQUATIONS AND INEQUALITIES

Meaning of equality, inequality, variable, equation
Deriving equations from verbal problems; solving verbal
problems

Solving equations: $5a + 2 = 17$
 $x + 7 = 5$
 $3y = 2$

Flow charts
Concept of a function
Ordered pairs; locating a point in a plane using an ordered
pair
Graphing equations in two variables
Solving inequalities: $x > 5$ $x + 3 < 8$
Order of operations
Using formulas

CONTENT AREA AND TOPICSKILLS AND KNOWLEDGEOPERATIONS AND APPLICATIONS:INTEGERS; ROOTS

Positive and negative integers

Comparing and ordering integers

Adding and subtracting integers

Square root of a perfect square; square root table

STATISTICS; PROBABILITY

Mean, mode, median as averages; frequency; range

Concepts of probability

Probability as a ratio; as a percent

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

MUSIC APPRECIATION

Music is approached through the process of active participation by: singing folk and art songs in unison, two- and three-part songs; musical instrument instruction - recorders, guitars, classroom instruments; attendance at concerts; creative activities.

MAJOR ELECTIVES

The Chorus - Vocal Techniques

Proper voice production is essential to quality singing. Vocal techniques such as: controlled use of the vocal apparatus, resonant tone quality, correct intonation, clear diction are taught in the vocal class and the chorus. There is a need to understand the tone-producing organs, e.g., mouth, lips, larynx, pharynx, tongue and uvula.

THE INSTRUMENTAL PROGRAM

The instrumental program provides the fundamental training on all instruments. Homogeneous instrument training classes are more effective than heterogeneous classes (single instrument class, such as violin only, as opposed to violin, viola, cello and bass violin in the same class).

Band
Orchestra
Instrumental Class

The orchestra and the band provide the vehicle for the development of ensemble playing, technique development, reading of traditional and contemporary music literature, student conducting and performance.

<u>CONTENT AREA AND TOPIC</u>	<u>SKILLS AND KNOWLEDGE</u>
<u>PHYSICAL FITNESS, CONDITIONING AND BODY MECHANICS</u>	
CALISTHENICS	Understanding of role of calisthenics as a daily remedial, warm-up and conditioning activity
Isotonic Exercises	Push-ups, squat thrust, sit-ups, jumping jacks, modified pull- ups, running in place, knee raise
Isonetric Exercises	Contractions held for six to ten seconds, with two-second rest between contractions Press hands together overhead, hands hooked at chest - pull apart, pressing palms against hips, sitting position; press hands against floor
WEIGHT TRAINING	Understand value of resistive exercise in achieving physical fitness - high pull-ups, two-arm standing curls, two- arm standing press
CIRCUIT TRAINING	Pull-ups, squat thrusts, step-ups, alternate presses, sit-ups, dips on parallel bars, shuttle run, barbell curl; run- ning in place
PHYSICAL FITNESS TESTS	Annual physical fitness testing - Achievement of physical fit- ness levels necessary to pass National Standardized Tests.
AAPHER Youth Fitness Tests	Pull-ups, sit-ups, flexed-arm hang, shuttle run, long jump, 50-yard dash, 600-yard walk-run

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

PHYSICAL FITNESS, CONDITIONING
AND BODY MECHANICS (continued)

DANCE

MODERN DANCE

Conditioning Techniques

Bent-knee bounce, straight-leg bounce, prance
Preparation

Sitting and Kneeling

Sitting and kneeling, lying techniques

Standing and Locomotor

Position A, B, C knee bends, walk, foot preparation for the
walk
Performance and creation

INDIVIDUAL, DUAL AND LEISURE-
TIME SPORTS

BADMINTON

Basic Skills

Grip -- Forehand and backhand
Player positions -- Center court, ready, footwork
Serve -- Low serve, placement
Strokes -- Overhead clear, forehand and backhand drive, back-
hand clear

BOWLING

Basic Skills

Stance - Erect
Ball delivery -- Position for straight ball, four-step ap-
proach, release, follow-through

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

INDIVIDUAL, DUAL AND LEISURE-
TIME SPORTS (continued)

GOLF

Basic Skills

The grip, back swing, down swing, putting, use of irons

GYMNASTICS

Parallel Bars

Forward Roll

Uneven Parallel Bars

Cross seat mount, pull off low bar with quarter turn,
crotch seat

Horizontal Bar

Leg raise -- Straight knee, forward roll to hang

Side Horse

Flank vault, rear vault, single-leg cut forward - Half circle

Long Horse Vaulting

Squat vault, straddle vault

Balance Beam

Straight-arm support mount, straight-arm seat mount, crotch-
seat mount, walk on beam, dip step, leg swing, simple
run, V-seat, arabesque, front and knee scales, toe
balance from knee scale, simple jump dismount

TUMBLING AND FLOOR EXERCISES

Tip-up, handstand with support, cartwheel

Dual stunts: Knee-to-shoulder balance, swan balance, foot-
to-hand balance, double roll, elephant walk,
back-to-back roll, pyramids

Rope Climbing

Climb half-way -- hands and feet

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

TRACK AND FIELD

High Jump

Western Roll

Hurdles

Low Hurdles -- Start and form

TEAM SPORTS

BASEBALL - SOFTBALL

Basic Skill

Fielding -- Ground ball in the outfield

Pitching (softball) -- Windmill delivery

Batting -- Sacrifice bunt

Base running -- Advance for extra bases, steal and slide

Defensive skills -- Backing up players, outfield throw to the infield, force-outs, run-downs, throws to bases

BASKETBALL

Basic Skills

Passing -- Baseball, one-hand side arm; cross-chest

Shots -- One-hand jump, underhand lay-up over front rim

Dribbling -- Change direction, dribble, stop and pass-off

Defensive Skills -- Forward and backward shuffle, 3-2 zone, 2-3 zone, 1-2-2 zone

Offensive Skills -- Horseshoe weave

FLAG FOOTBALL

Basic Skills

Stance -- Lineman and backfield

Passing -- Overhand

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

TEAM SPORTS (continued)

FLAG FOOTBALL

Basic Skills (continued)

Catching -- Above and below the waist
 Ball Carrying -- Center-quarterback exchange, hand-off
 Blocking -- Brush, shoulder
 Kicking and punting
 Defensive Skills -- Line and backfield

VOLLEYBALL

Serving

Underhand, open-palm

Passing and Volleying

Flick pass -- above and below the waist, spike, forward set
 pass and spike

Rotation

Simple -- basic

Defensive Skills

Blocking

SCIENCE GRADE 8

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

CHEMISTRY

LIQUID SOLUTIONS

*pp: 1-39

Time: 12 periods

Forming Solutions With
Water

Liquids, solids, and gases which dissolve in water form homogeneous solutions. The dissolving substance is called the solute. The substance in which it dissolves is the solvent.

Using Other Solvents

Other liquids may serve as solvents for substances which will not dissolve in water.

Identifying Factors Affecting
Time For Solutes to Dissolve

The rate of dissolving of solutes is affected by size of particles, mixing of solution, and temperature of solvent.

Changing the Boiling and
Freezing Points of Water

The addition of solute to water lowers the freezing point and elevates the boiling point of water according to the amount of solute added.

Separation of Solute
From Solvent

Dissolved solutes may be separated by distillation and evaporation.
Distillation may be used to purify water.

*SCIENCE - GRADE 8, #20, 68 Series

SCIENCE GRADE 8

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

SUSPENSIONS AND EMULSIONS

*pp: 40-57

Time: 8 periods

Identifying Characteristics
of Suspensions

Substances which do not dissolve in a liquid remain suspended in the medium.

Suspensions can be identified by means of the Tyndall Effect (light beam).

Suspended particles may be separated by filtering and sedimentation.

Special Kinds of Suspensions

An emulsion is a special kind of suspension of two immiscible liquids (oil and water, mayonnaise).

Separation of the substances from the media is accomplished by coagulation and centrifugation.

Mechanical blending, emulsifying agents (soap, pectin), and gel formation help to keep the parts in suspension.

ACIDS AND BASES

*pp: 58-88

Time: 6 periods

Identifying Acids and Bases

Acids and bases are special groups of chemical substances which can be identified by their special properties - changing color with indicators, reaction with metals.

Many common acids and bases are used in the home - acetic acid, milk of magnesia.

Salts of acids and bases help conduct electricity in solution.

SCIENCE GRADE 8

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

PHYSICS

ENERGY

*pp: 100-114

Time: 5 periods

Using Different Forms
of Energy

Streams, wind, and moving water have mechanical energy. Other forms of energy are chemical, electrical, atomic, heat, light, and sound.

Energy may be changed from one form into another called conversions. Energy can neither be created or destroyed, only changed from one form into another.

FORCE AND WORK

*pp: 115-132

Time: 6 periods

Defining the Terms
"Force and Work"

Force is defined as a push or pull on an object, while work is defined as a force which causes an object to move.

Measuring Force and Work

The stretch of a spring or the use of a balance may be used to measure force. Work is calculated by multiplying the force by the distance moved.

Reducing friction and using devices with a mechanical advantage help us to do work with less force.

MACHINES

*pp: 133-151

Time: 6 periods

Using Mechanical Advantage
of Machines To Do Work

Using such devices as the lever, pulley, and inclined plane demonstrates how machines multiply force and make work easier.

SCIENCE GRADE 8

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Measuring Mechanical
Advantage

Determining the mechanical advantage indicates the number of times a machine multiplies the effort force.

A knowledge and understanding of such terms as fulcrum, effort arm, resistance arm, and moments of force are essential to making calculations concerning mechanical advantage. Machines providing a mechanical advantage multiply the force necessary to do work, but decrease the distance (height) the object moves.

GRAVITY, DENSITY AND
SPECIFIC GRAVITY

*pp: 152-178

Time: 10 periods

GRAVITY

Finding Out Why Objects
Have Weight

Objects fall toward the center of the Earth.
The weight of an object is related to the force of gravity acting on that object.
All substances exert pressure. Pressure in gases and liquids increases with depth

DENSITY

Comparing Weight of
Different Materials

Density is a ratio of the weight of a substance to its volume. Density is a specific property of a substance and always remains the same. This property helps us identify the substance.

SCIENCE GRADE 8

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Determining Why Objects
Will Float or Sink

Applying the concepts of density to Archimedes' Principle, we can determine that an object will sink when its weight is greater than the weight of an equal volume of water. The object will float if its weight is less than the weight of an equal volume of water. The loss of weight of a sinking object is equal to the weight of the displaced water.

BIOLOGY

DIGESTION AND ABSORPTION

*pp: 190-222

Time: 13 periods

Identifying Different Parts
of the Digestive System

The digestive system is a tube through which food is moved in order to break up and assimilate useful nutrients. Different parts of the digestive system are specialized to perform different operations of the digestive and absorption processes.

Determining How Food is
Absorbed by the Body

Food must be made simpler (broken down) and changed (made soluble) before the nutrients may pass through the walls of the small intestine. Enzymes and digestive juices aid in the breakdown of food. The walls of the intestinal tract contain small structures called villi, which increase the surface area for absorption and selectively allow nutrients to pass through into the blood.

SCIENCE GRADE 8

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

CIRCULATION AND RESPIRATION

*pp: 223-249

Time: 9 periods

Finding Out How Blood
Circulates

Comparing the circulatory system of different forms shows that it consists of a closed system of blood vessels (arteries, veins, and capillaries), the heart, and blood.

The circulatory system is differentiated to perform different functions. The functions are concerned with transport of dissolved nutrients, removal of wastes, oxygen and CO₂ exchange and defense against foreign organisms.

The respiratory system and circulatory systems work together to provide oxygen to the cells of the body and remove oxidation wastes from the body. Specialized structures in the respiratory system facilitate the exchange of gases.

EXCRETION

*pp: 250-257

Time: 6 periods

Removal of Wastes

A study of the structures and function of the skin and kidney reveal how they are adapted to remove wastes and regulate body temperature.

EARTH SCIENCE

THE ATMOSPHERE

*pp: 288-334

Time: 18 periods

Composition of Air

A study of the different parts of air reveals that air is a mixture of gases, including oxygen, nitrogen, and carbon dioxide. Specific tests demonstrate these gases in air.

Heating the Air Near the Earth

Air also contains water, vapor, dust, and pollutants which affect the quality of air.
The atmosphere is divided into several sections of varying height.
Each part has definite characteristics associated with that region.

Air Pressure and Winds

By using various devices, it can be shown that radiant energy from the sun is absorbed by the earth and changed to heat energy. The air near the surface is heated by conduction and convection.
Warm air is lighter and is pushed up by cooler, denser air. The movement of air gives rise to winds.
Differential heating of the surface of the earth and water, and the earth's rotation, produce convection currents or winds.

Water in the Atmosphere

Dry, cool air produces regions of high pressure. Warm, moist air develops areas of low pressure.
Air moves from regions of high to low pressure at speeds related to the differences in pressure.

Water evaporates into the atmosphere from many sources. The percentage of moisture in the air compared to what it can hold is called relative humidity. Calculations of dew point and humidity are important functions of weather predictions. In the presence of dust particles, moisture condenses as clouds when the air is cooled.

WEATHER

*pp: 335-367
Time: 11 periods

Factors Affecting Weather

The study of the factors which cause changes in weather (temperature, humidity, precipitation, winds, air pressure, and sky conditions, clouds) helps us predict the weather.

SCIENCE GRADE 8

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Changes in the Weather

A weather station model of symbols is a convenient method of showing weather factors at a particular location. Weather factors are measured with a variety of instruments - windvane and anemometer, psychrometer, wind balloons, and barometer.

Air masses are large areas of air with uniform temperature and humidity. Movements of air masses transfer the weather characteristics to the surface over which they are passing. The interaction of the fronts of the air masses effects a change in the weather.

Weather Station Models

Weather maps show the weather at many locations at the same time by means of station models.

An understanding and interpretation of the weather symbols provide information about future weather conditions for any area.

Meteorology is the study of weather and the construction of weather maps to forecast the weather.

CONTENT AREA AND TOPICSKILLS AND KNOWLEDGEURBAN AMERICA IN THE 20th CENTURY

*pp.5-18

Time: 12 weeks

The impact of industrialization

The corporate business form and monopolies led to the concentration of business power and growth of personal fortunes. Adverse effects of industrialism included: "sweatshop" conditions of workers, economic depression of farmers, cheating of consumers, and corruption of government. Positive effects included: improved standards of nutrition, increase in longevity, rapid population growth, mass public education, daily press, higher standards of living for millions.

Workers' unions, farmers' alliances, journalistic muckrackers, political parties and individual reformers challenged big business abuses.

Theodore Roosevelt's "Square Deal" and Woodrow Wilson's "New Freedom" tried to correct the abuses of big business through government regulation.

The Spanish American War contributed to America's development as an emerging world power. World War I solidified this position.

How Americans have attempted to solve the economic and social problems of the 20th century

In the "Roaring Twenties," many Americans rejected reformers, accepted a materialistic morality, accepted a laissez-faire government policy, ignored signs of economic danger, and fell victim to the Great Depression.

Franklin D. Roosevelt's "New Deal" tried to help many Americans cope with the Depression, and revive the economy through relief, recovery, reform programs.

The private and public sectors of the economy have tried to cope with the post-World War II economic problems of growth, unemployment, and inflation.

The United States is a superpower in the 20th century

Isolationism and neutrality gave way to involvement in World War II. Containment was a policy for the Korean and Vietnam conflicts.

*Experimental Curriculum Bulletin: URBAN GROWTH: CITIZENSHIP IN A CHANGING SOCIETY (Reference for Adaptation)

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

American arts and mass media as mirrors of American society

Recreation, the arts, and the media are reflective of the interests, moods, and morals of each period in American history.

Conservation of resources and preservation of the environment

Rapid expansion of the economy has created dangers to the environment: depletion of resources; air, water, and land pollution.

Consumer demands and business interests may conflict with efforts to preserve a high quality environment.

Prejudice, discrimination and racism in America in the twentieth century.

European and Asiatic immigrants have had to overcome discrimination while struggling both to assimilate into the dominant culture and maintain their distinctive heritage. Blacks and Hispanics have tried to overcome discrimination in many areas of American life through organizational efforts, charismatic leaders, court decisions, legislation, activist strategies, and affirmative action programs.

Women have used individual, organizational efforts and legislation to overcome discrimination.

Growth and problems of urban America

Cities and suburbs have grown in certain locations because of geographic advantages, improvements in transportation, and government action.

Opportunities, activities and services have attracted people to American cities.

Rapid growth created many social and economic problems in the cities which led to the expansion of suburbs.

The flight of the middle class is being fought by self-help, private, and governmental efforts in the cities.

THE METROPOLITAN AREA: A CASE STUDY

*pp. 19-25

Time: 8 weeks

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Growth of New York City metropolitan area

New York City, from colonial times through the 20th century, has been an important seaport, center of industry and trade, and haven for immigrants,
As part of an East coast megalopolis, New York City's institutions, successes and problems are interrelated with those of its suburbs and neighboring cities.
The many minority groups in New York City have struggled to assimilate and yet preserve their distinct heritage.

How New York City deals with problems caused by growth

New York City faces many problems: increasing demands for services, insufficient financial resources, abandoned houses and slums, insufficient transportation facilities, pollution of the environment, high crime rate.
Through private efforts, local government programs and State and Federal aid, New York City has used varying strategies to balance its budget, provide services, alleviate problems, and stem the flight of the middle class.

CITIZENSHIP IN ACTION

*Pp. 27-53

Time: 20 weeks

Structure and functions of government in the United States

To live peaceably, people throughout history have developed governmental institutions that make, enforce, and interpret laws.
Monarchy, dictatorship, and democracy are different forms of government.
United States democracy has its roots in ancient Greek democracy, English democracy, and colonial American democracy.
The Declaration of Independence states the philosophy of our government.
The Constitution provides a framework for our government.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Structure and functions of government in the United States (continued)

Division of powers, separation of powers, checks and balances, and inherent flexibility are hallmarks of our Constitution.

States and localities have instruments of government powers and leaders similar to the national government.

The citizen's exercise of rights and responsibilities should begin in school and continue throughout life.

Political systems in the United States

People organize into self-interest groups to set priorities, make choices, choose leaders and try to influence political decision-making.

Political parties bring together people of similar interests to elect their candidates and make laws.

Competition among political parties affords people choices among views and candidates.

Public apathy may permit political abuses. An enlightened and involved electorate can help prevent these abuses.

Legal systems in the United States

Acceptable and enforceable laws enable people to live peaceably. Federal, state and local law-making procedures involve individual and groups in the process.

The Constitution is the "Supreme Law of the Land."

The Bill of Rights protects individual freedoms.

All laws must be consistent with the Constitution.

Society has devised procedures to prevent lawbreaking and punish lawbreakers. The rights of the accused are protected in these procedures. Methods of dealing with lawbreakers (capital punishment, prison, fines) are controversial issues.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Consumer education

Society has developed methods to produce, allocate and distribute goods and services for needs and wants.
Standards of living reflect income, prices, definitions of "luxury" and "necessity," and availability of goods and services.
Supply, demand, economic interest groups and world conditions affect prices.
Rapidly rising prices (inflation) have varied effects on different economic groups.
Consumer awareness and activism can help maximize gratification when purchases are made.

Citizenship in our urban society

The exercise of individual rights and freedoms includes the assumption of individual responsibility.
Learning to deal with governmental bureaucracy enables the citizen to benefit more from governmental services.

CURRENT AFFAIRS

Current affairs are studied to see how they affect children's lives and to assist in developing civic responsibility.

WORK STUDY SKILLS

Road maps and mass transit maps are interpreted.
Newspapers and current magazines are used for locating and gathering information relating to urban development.
Geographic facts, population figures, and economic facts are used to classify information relating to urban growth.
The uses of compromise and consensus are practiced in discussions.
Individual and group projects on relevant topics are prepared and presented as part of the curriculum.

Grade 9

MINIMUM TEACHING ESSENTIALS

Art	344
Mathematics	352
Music	358
Physical Education	359
Science	364
Social Studies	372

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

DRAWING

Time: 8-12 weeks
Drawing Based on
Personal Experience

Drawing Based on Memory
and Imagination

Landscape and Cityscape

Drawing from Nature

Variety of Media

Illustration:
Planning Sketches
and Final Rendering

Technical Drawing:
Biological, Architectural,
and Medical

Design elements of line, value, space, shape, form and texture are used in drawings.

Design principles of contrast, balance, repetition, movement and pattern are used in drawings.

Previous drawing experiences (Grades 7 and 8) are repeated and built upon. These serve as exercises to be adapted to more conscious and finished work.

Natural forms are closely observed and sketched while students are on field trips.
Flexibility is developed by drawing same object very small and very large.

Hard and soft pencils, flexible pen points, dry brush, Chinese brush and ink, felt-tip pens, charcoal, chalk, litho crayons, and craypas are used to draw on papers of various textures, colors, sizes, shapes, and weights.

Suitable media and techniques are chosen to illustrate a story, poem, or facet of school life for school publications such as the literary magazine, yearbook, and newspaper.

Examples of technical subjects found in newspapers, magazines, and other graphic publications are collected. Examples of technical illustration are studied.

Students draw cell structures, anatomical parts, flying buttresses, piers, corbels, and other technical objects.

CONTENT AREA AND TOPICSKILLS AND KNOWLEDGEDRAWING (Continued)

Basic Concepts

Design elements and principles are central to all drawing experiences.

Drawing is a way of recognizing the concepts that are basic to art.

PAINTING

Time: 6-9 Weeks

General Principles

Paintings portray a variety of thoughts, moods, and images evoked by real and imaginary experiences. Painting is a means of personal expression and communication. Painting utilizes various qualities of color and design. Painting experience leads to an understanding of artists' works. Landscape, portrait, still life, scenes of daily life, abstractions and imaginary scenes are subjects for painting.

Basic Principles

Design elements are related to all subjects for painting. Complex shapes are simplified. Important details are emphasized. Colors are combined on a trial sheet, then selected.

The Portrait

Character and personality may be more important than details of features. Particular features may be emphasized for greater expressiveness. Color and texture contribute to expressing character and individuality.

The Landscape

The environment is a resource for creative expression. Color and design re-create the visual and emotional impact of a scene. Pattern and perspective are important elements in depicting the atmosphere of a scene. Points of view may vary from ground level, the top of a building, close-up, or far away.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

PAINTING (Continued)

Landscape (cont.)

Principal elements to be included in the painting are blocked in with areas of color.

The Imaginative Scene

Day-dreaming and flights of fancy serve as stimuli for personal expression.

Color and design are particularly important to this kind of painting.

Color and perspective suggest space and distance.

The Mood Painting

A close relationship exists between color and feeling in emotional expression.

It is important to identify the prevailing feeling or emotion. Different color combinations produce lively or subdued effects. Individual colors have psychological associations.

SCULPTURE

Time: 4-6 Weeks

Self-Portrait in Clay

Experiences and learnings gained in Grades 7 and 8 provide skills for further development as students model self-portraits.

Papier-mâché,
Stage Sets
and Props

Heavy cardboard, papier-mâché, and plaster gauze are used to construct stage sets and props for theatrical performances or interpretative work.

Environmental Design

Materials such as plaster gauze, papier-mâché, and acrylic paints are used to construct forms suitable for a vest-pocket park, a schoolyard, a playground, or street furniture.

Appreciation

Sculpture is related to architecture in many new buildings in New York City.

CONTENT AREA AND TOPICSKILLS AND KNOWLEDGEFABRICS AND FIBERS

Time: 3-5 Weeks
Realistic or Abstract
Designs: Subject Matter
for Soft Sculpture

Three-dimensional soft sculptures are created using fabrics and fibers.
Patterns are made to act as guides in cutting designs out of fabrics.
Designs are appliqued to a background fabric and stuffed to create low reliefs.
Creative stitchery is used to accentuate details.
Work can be made into pillows, toys, and wall hangings.
Concept of soft-sculpture can be expanded to create sculpture in the round.
Similar work by contemporary artists can be found at local galleries.

LETTERING

Time: 2-3 Weeks

Lettering is appropriate to its purpose.
Simple, clear, well-designed lettering is planned for school, social, and business usage.
Labels, signs, and texts are subjects for lettering.
Hieroglyphics, cuneiform, Roman, and manuscript alphabets have contributed to present day letter forms.
Typography is an important part of the art of the book.
Variations of proportions and their space arrangements are important elements in the design qualities and legibility of letters.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

ADVERTISING ARTS

Time:6-9 Weeks
Forms,Media and
Processes

The Cover Design

The Poster

The Exhibition

Posters,signs,direct mail,publication, newspapers, television, and displays are forms of advertising.

Advertising arts employ many different media as well as mixed media.

The fine arts influence contemporary advertising design.

Silk-screen,lithography, and letter press are processes used in advertising.

Color and design contribute to the attractiveness of a book or folder.

Lettering is an integral part of a cover design.

The content of a book or folder is related to the color and design of its cover.

Color and design possess persuasive and dramatic power.

The psychological aspects of color and design are utilized for more effective communication.

Simplicity of design is an important factor in the effectiveness of conveying a message.

Simple and functional lettering is used in poster design.

Subject matter is handled in terms of shapes,colors, and symbolic designs,rather than detailed representation.

The organization of a display contributes to its effectiveness.

An exhibition of art is selective in content.

An informative text adds to the effectiveness of an exhibition.

Exhibitions may be organized in a time sequence, or organized about a theme.

Captions are an effective device for communicating meaning.

CONTENT AREA AND TOPICSKILLS AND KNOWLEDGETHEATER DESIGN

Time: 4-6 Weeks
General Principles

Color and design play important parts in relation to school theatrical productions, club entertainments and assemblies.
The psychological use of color in stage settings, costumes, and lighting lends itself to a wide range of creativity.

Colored Light

Colored light has an effect on pigments and fabrics.
Color and lights have an effect on how spatial relationships are perceived.
Color and light may create or reinforce a mood.
Light projected through colored gelatins can be mixed to produce a variety of colors.

Theatrical Costumes

Color, texture, and design are important elements in costuming.
Color can be used to characterize an actor and give him proper emphasis.
Silhouette is an important factor in the design of an effective costume.

APPAREL AND COSTUME DESIGN

Time: 4-6 Weeks
School and Party Clothing

Paper, fabrics, crayons, paints, scissors, and adhesives are used to design clothes.
The relationship of clothing to the function of the garment, to the personality of the designer and to the figure of the wearer is discussed.
A costume is created for a specific function.
Various shapes, colors, and textures of fabric or paper are experimented with to design a costume.
Students distinguish between striking color contrasts and subtle color relationships.
Effective use is made of details such as collar or tie shape, position of belt, and the use of accessories.

Museum Trips:
Metropolitan Museum of Art
Costume Institute

Examples of the work of contemporary American and international clothes designers are studied, as well as the clothes worn in primitive cultures.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

INTERIOR DESIGN

Time: 4-6 Weeks

Physical and Esthetic
Essentials

A home meets the needs of all its members.

Color and design relationships achieve effects of space
and unity.

Color Scheme

Color serves as a means of personal expression.

Color is related to the size and to the function of a
room.

Design and color elements create a pleasing atmosphere.

Trial combinations of colors, textures, and patterns
are made for study.

Color schemes can be warm and cozy, or light and cool.

Window Treatment

The treatment of windows affects the appearance of a
room.

The proportion of wall areas to window areas determines
the design problem.

The height and width of a wall can be emphasized or
minimized by the window treatment.

Draperies of different shapes have different effects on
the wall area.

Patterned and plain surfaces create a variety of effects.

Model Room Construction

Paper and cardboard can be cut and folded to represent
architectural features, such as windows, doors, and
walls.

Paper and cardboard can be cut and folded to represent
important furniture shapes.

Trial arrangements are made to establish interior design.

Color accents are added to the design at the final stage.

CONTENT AREA AND TOPICSKILLS AND KNOWLEDGEPHOTOGRAPHY

Time: 9-12 weeks

Exhibitions of the work of contemporary photographers are viewed.

Collages

Collages are created from black and white and/or color negatives and prints.

Albums

Examples of notable photography found in magazines and newspapers are collected.

Albums are designed and constructed for photographs of particular subjects or themes.

Picture Stories

Pictures are taken of family members, friends, and relatives in order to make a personal record revealing the photographer's feelings.

The camera is used to explore the immediate environment.

Prints are arranged in sequence for a photo essay so that they tell the story of a city block, or city shopping center.

Exhibitions

Titles, captions, and comments are added to prints to make interesting exhibitions.

A sequence of images is shown in the overhead projector to tell a story. Images may mix original drawings with original photographs.

Research

Research is done in a particular field of photography, for example: fashion photography, underwater photography, medical photography, and aerial photography.

The influence of abstract art on photography is explored in the work of Lazlo Moholy-Nagy and others.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

WHOLE NUMBERS AND INTEGERS

*pp. 7-10; 12-23
***pp. 145-115; 227-236

Base ten system of numeration: place value, reading and writing numerals; exponents and powers; rounding numbers
Four basic operations: finding the sum and difference of whole numbers; finding the product and quotient of whole numbers (divisors less than 100)
Prime and composite numbers
Positive and negative integers: concept; order; addition; subtraction in practical applications only, e.g., temperature

FRACTIONS AND DECIMALS

*pp. 3-8; 57-58
**pp. 63-70; 85-86
***pp. 48-57

Fractions and mixed numerals: meaning, equivalence, comparison; simplest form; ordering (using inequality symbol)
Basic operations with fractions and mixed numerals; applications and problem solving, including discount
Decimal notation: place value, equivalence, comparison, ordering, rounding; fractional and percent equivalents
Basic operations with decimals and dollars and cents; applications and problem solving

RATIO; PROPORTION; AND PERCENT

*pp. 46-57; 122-123
**pp. 43-68; 153-160
***pp. 180-265

Ratio; equivalent ratios; proportion; scale drawing; map reading and interpretation
Percent: meaning; relation to fractions and decimals; finding percent of a number; finding what percent one number is of another
Applications: simple interest; discount, commission; sales tax

*FUNDAMENTALS OF MATHEMATICS, Part 1 Experimental Curriculum Bulletin 1978
**FUNDAMENTALS OF MATHEMATICS, Part 2 Experimental Curriculum Bulletin 1978
***GENERAL MATHEMATICS 9th Year · Curriculum Bulletin · 1964-65 Series No. 16

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

GEOMETRY AND MEASUREMENT

- *pp. 25-45; 124-144;
- **pp. 72-88; 106-110; 125-136;
162-168
- ***pp. 42-91

Concepts and terms applied to : point, line, plane
 Angles and triangles: identification and classification;
 right triangle relationship
 Quadrilaterals: identification and classification
 The circle: its parts; circumference
 Polygons: perimeter of polygons; problems involving perimeter
 Solid geometric figures: rectangular solid, cube, cylinder,
 cone, sphere, pyramid
 Metric system: linear, weight, capacity, temperature
 Use of ruler: customary and metric units
 Area: rectangle, square, triangle, circle
 Volume: rectangular solid, cube, cylinder
 Operations with denominate numbers, including time

EQUALITIES AND THEIR GRAPHS

- *pp. 1-2
- **pp. 15-42; 137-147; 158-180
- ***pp. 10-30; 186-190; 214-226

Symbols of equality and inequality in number expressions
 Solving equations:

$$\begin{array}{rcl} x + 7 = 12 & x - 4 = 9 \\ 2x = 6 & 2x + 1 = 11 \\ \frac{x}{4} = 8 & \frac{2x}{3} = 8 \end{array}$$

Writing, interpreting, evaluating, and graphing formulas

Solving a proportion: $\frac{x}{3} = \frac{4}{12}$

Locating a point in a plane using an ordered pair

Graphing linear equations in two variables: $x + y = 7$

Reading and interpreting graphs of formulas

Using the Pythagorean formula

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

PROBABILITY; STATISTICS;
AND GRAPHS

- *pp. 58-100
- **pp. 169-180
- ***pp. 124-145; 166-185

Reading and interpreting pictographs, line graphs, bar graphs, circle graphs
Graphing linear equations in two variables; formulas
Collecting, organizing, and interpreting data
Concept of average: mean, median, mode
Meaning of probability; probability as a ratio

CONSUMER AND BANKING SKILLS

- *pp. 101-103; 114-123
- **pp. 43-68
- ***pp. 96-123

Unit pricing; comparing prices; installment purchases; sales tax
Computing income: wages and salaries; overtime; commission
Savings and checking accounts; simple interest, discount
Phone, utility, and postal rates
Reading charts, tables, travel schedules
Applications of mathematics in career areas
Rentals, mortgages, and insurance

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

SYMBOLS IN MATHEMATICS

*pp. 1-7; 48-50

**pp. 1-2

Order of operations
The letter as a variable

RATIONAL NUMBERS: OPERATIONS
AND PROPERTIES

*pp. 9-47; 61-73; 179-180

Addition of signed numbers; additive identity and additive
inverse
Subtraction of signed numbers
Multiplication of signed numbers: distributive property of
multiplication over addition and multiplicative in-
verse
Division of signed numbers
Zero property of multiplication

LINEAR EQUATIONS IN ONE
VARIABLE

*pp. 7-8; 57-60; 73-81;
122-124

Verbal expressions and mathematical symbolism
Equations: formulas; using distributive property; verbal
problems

POLYNOMIALS

*pp. 50-57 81-86; 92-114

Polynomials: coefficients, factors, and exponents
Formulas: as open sentences, evaluation
Addition of monomials; of polynomials
Subtraction of polynomials
Multiplication of monomials, of polynomials: polynomial by a
monomial, binomial by a binomial
Simplifying members of an equation
Verbal problems, e.g., perimeter

*MATHEMATICS 9th Year Curriculum Bulletin : 1966-67 Series. No. 4

**Addendum to Mathematics 9th Year Bulletin

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

EQUATIONS AND INEQUALITIES

*pp. 115-121; 124-134; 87-90

Verbal problems: uniform motion, overtake, roundtrip
Inequalities

DIVISION OF POLYNOMIALS

*pp. 175-185

Division of monomials
Division of polynomials: polynomial by a monomial; polynomial
by a binomial; polynomial by a binomial with a re-
mainder

SYSTEMS OF EQUATIONS AND GRAPHS

*pp. 83-85; 90-91; 135-174

**pp. 13-17

The coordinate plane
Graphing a linear equation in two variables
Slope and Y-intercept
Graphical solution of a system of two linear equations
in two variables
Algebraic solution of a system of equations
Verbal problems: number and business problems in-
volving two variables; dry, mixture; investment; digit
Graphing a linear inequality; graphing a system of linear
inequalities

FACTORING AND QUADRATIC EQUATIONS

*pp. 186-198; 203-210

Factoring polynomials
Multiplying two binomials by inspection; special products
of trinomials, of binomials
Factoring polynomials: difference of two squares,
 $ax^2 + bx + c$ $a = 1$ $a > 1$
Quadratic equations
Verbal problems: involving quadratic equations; area

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

ALGEBRAIC FRACTIONS

*pp. 211-234

Simplifying fractions through factoring: monomial numerators and denominators; polynomial numerators and/or denominators
 Multiplying fractions
 Dividing fractions
 Combining (adding, subtracting) fractions: like monomial denominators; monomial numerators and unlike monomial denominators; polynomial numerators and unlike monomial denominators
 Solving fractional type equations: monomial numerators and monomial denominators; binomial numerators and monomial denominators
 Verbal problems: work; number; involving equations with fractions

THE REAL NUMBERS

*pp. 235-262

**pp. 3-4; 7-10

Rational numbers
 Real numbers; irrational numbers associated with points on the number line
 Significant digits
 Meaning of square root; approximation of square root
 Pythagorean theorem
 Radicals: simplifying; multiplying and dividing; combining

RATIO; PROPORTION AND INDIRECT MEASUREMENT

*pp. 271-277; 282-298

Ratio; proportion
 Solving ratio and proportion problems using algebraic methods
 Indirect measurement: similar triangles; tangent, sine, and cosine ratio; trigonometric problems

MUSIC GRADE 9

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

MUSIC APPRECIATION

Listening

Music is heard in the concert hall, on television and radio, and in the school.

Singing

Choral music is arranged in three- and four-part singing.

The repertoire of songs is drawn from traditional art songs, popular and folk rock songs, and national songs.

Reading Music

Some options for the general music program are: guitar class, recorder, history of jazz, folk music, electronic music.

MAJOR ELECTIVES

Vocal

Vocal classes are programmed as vocal training class, mixed class, mixed chorus, boys chorus, girls chorus.

The Chorus
Choral Techniques

The vocal techniques include: blending, articulation, phrasing and balance.

The repertoire is drawn from current materials, such as folk rock.

MAJOR ELECTIVE

Instrumental
Instrumental Class

Instrument training begins in the instrumental music class.
(homogeneous instrument classes)

Band
Orchestra

Bands and orchestras are culminating musical activities (concerts, assemblies).

They can play prepared arrangements designed for their abilities and drawn from traditional and modern material.

The musical techniques should include: blending, balance, phrasing, articulation and intonation.

<u>CONTENT AREA AND TOPIC</u>	<u>SKILLS AND KNOWLEDGE</u>
<u>PHYSICAL FITNESS, CONDITIONING AND BODY MECHANICS</u>	
CALISTHENICS	Understanding role of calisthenics as a daily remedial, warm-up and conditioning activity
Isotonic Exercises	Push-ups, squat thrust, sit-ups, jumping jacks, modified pull-ups, running in place, knee raise
Isometric Exercises	Contractions held for six to ten seconds with two-second rest between contractions, press hands together overhead, hands hooked at chest -- pull apart, press palms against hips, sitting position, press hands against floor
WEIGHT TRAINING	Understand value of resistive exercises in achieving physical fitness; high pull-ups, two-arm standing curls, two-arm standing press
CIRCUIT TRAINING	Pull-ups, squat thrusts, step-ups, alternate presses, sit-ups, dips on parallel bars, shuttle run, barbell curl, running in place
PHYSICAL FITNESS TESTS	Annual physical fitness testing. Achievement of physical fitness levels necessary to pass National Standardized Tests
AAHPER Youth Fitness Test	Pull-ups, sit-ups, flexed-arm hang, shuttle run, standing broad jump, 5- yard dash, 600-yard walk-run

<u>CONTENT AREA AND TOPIC</u>	<u>SKILLS AND KNOWLEDGE</u>
<u>PHYSICAL FITNESS, CONDITIONING AND BODY MECHANICS</u> (continued)	
DANCE	
SOCIAL DANCE	
Basic Techniques	Dance, walk or glide; hesitation patterns; balance patterns; side-close patterns; box patterns
Basic Rhythms	Even-waltz rhythms; 3/4 waltz rhythm; fox trot rhythm; Latin dance rhythm
Dance with Partner	Social amenities; open and closed positions; one-quarter swing turns; variation of basic patterns
<u>INDIVIDUAL, DUAL AND LEISURE- TIME SPORTS</u>	
TENNIS	
Basic Strokes	Review of basic skills taught in grade seven Emphasis upon achieving a higher level of performance
GYMNASTICS	
Parallel Bars	Shoulder stand, one-leg cut mount, forward roll to straddle, L support, hip roll, inside swing turn, outside swing turn
Uneven Parallel Bars	Single leg flank vault, under swing on low bar, leg circles, counter swing, stride leg support-low bar, front somer- sault-low bar, back hip circle

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Horizontal Bar

Hip swing-pullover, single knee mount, forward knee circle to hang, underswing dismount

Side Horse

Thief vault, single leg cut forward - full circle, leg cut with travel to group or neck, vault dismount from hang

Long Horse Vaulting

Stoop vault

TUMBLING AND FLOOR EXERCISES

L support, backward roll with snap down, head stand, forward and backward roll with half-twist

Rope Climbing

Climb to top -- Hands and feet

HANDBALL

Fist or punch and full arm underhand stroke, straight arm underhand stroke, underhand serve, chop and spin serves, high-lob serve, low-drive serve, volley off the wall

Paddleball

Power grip, backhand leap swing, forehand swing, opposite hand, volley from face or chest, half volley, short hop volley, overhead return, overhead drive, overhead lob, overhead drop, overhead smash, mixing the serve

TRACK AND FIELD

Sprints

Start outdoor with blocks

Distance Running

Body angle, arm swing, stride

Relay Racing

Baton pass - non-visual

CONTENT AREA AND TOPICSKILLS AND KNOWLEDGETRACK AND FIELD (continued)

Long Jump

Running long jump

Triple Jump

Step and leap, running triple jump

High Jump

Review scissors and western roll
Emphasis upon achieving higher level of performance

Hurdles

Low hurdles -- Review of eighth grade skills

Shot Put

Stance, pivot, glide, follow-through

TEAM SPORTSBASKETBALL

Basic Skills

Passing -- Hook, two hand overhead
Shots -- Layup from left side with left hand, hook
Defensive Skills -- Boxing out
Offensive Skills -- Faking, breaking up a zone defense, figure
weaveGYM HOCKEY

Basic Skills

Stick Handling -- Grip and stance, dribbling, drive
Passing and Fielding
Game Skills -- Goalkeeper, offensive and defensive players

<u>CONTENT AREA AND TOPIC</u>	<u>SKILLS AND KNOWLEDGE</u>
SOCCER	
Basic Skills	Dribbling -- Inside, outside of foot Heading -- Sideways Tackling -- Two-leg tackle, charging, blocking Feinting -- Foot feint • Kicking -- Outside of foot flick, heel kick, short pass toe kick Trapping -- Inside, outside of foot Goal Keeping -- Position play, punt after catch, throw-out
VOLLEYBALL	
Basic Skills	
Serving	Underhand -- Closed fist
Passing and Volleying	Chest Pass -- Two hand Forward set pass Forearm Bump Dig Pass -- One hand
Defensive Skills	Serve Defense
<u>COMBATIVES</u>	
WRESTLING	
Basic Positions	Review of skills taught in the seventh grade Emphasis upon achieving a higher level of performance
Holds and Counters	Top and bottom referees positions Far ankle, far arm breakdown to half-nelson or crotch pin Side roll to counter, bridge and turn-into counter Sit-out and turn-in to counter sit-out Far ankle drive to waist lock Snap-back counter to sit-out and turn-in Wing and step over counter to half-nelson Near arm and waist lock Flatten-out counter for side roll Head pry level Rock of Gibraltar

SCIENCE * GRADE 9

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

PHYSICS

CHARACTERISTICS OF SOUND

*pp: 1-30

Time: 12 periods

How Sounds Are Produced

Sounds are produced by vibrating bodies. Loudness depends on the energy used to make the sound (amplitude). The number of vibrations per second determines the pitch (cycle or hertz). The frequency is the number of cycles or vibrations per second. The greater the frequency, the higher the pitch.

Changing the Pitch of Sounds

The pitch of a stringed instrument depends on length, tension, and width of the string.

Transmitting Sounds

Sound waves can only travel through a medium as waves. Sounds will not travel in a vacuum.

Qualities of Sound

The quality of a sound depends on size, shape, and composition of the object making the sound. Thus, a trumpet, clarinet, violin, and the human voice differ in quality. Reflection and diffusion of sound waves are demonstrated experimentally.

CHARACTERISTICS OF LIGHT

*pp: 31-70

Time: 15 periods

Light As A Form of Energy

Light (unlike sound) does not require a medium. The speed of light is many times greater than sound.

SCIENCE GRADE 9

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Shadows and Light

Light travels in straight lines as transverse waves on both the horizontal and vertical planes. Using polarizing lenses confirms the nature of light waves.

Shadows are produced when light strikes an opaque material. An artificial eclipse produced in the laboratory permits an analysis of the parts of a shadow and confirms that light travels in straight lines.

Reflection of Light

The angle of incidence of light striking a plane mirror is equal to the angle of reflection of the reflected ray. Laboratory procedures confirm the Law of Reflection and Diffusion of Light Images.

Using Convex and Concave Lenses

Tracing the path of light through various lenses reveals how light is affected by the lenses.

Prisms break up light into a spectrum of colors following the Law of Refraction.

CHEMISTRY

REACTION OF METALS

*pp: 72-118

Time: 15 periods

Arrangement of Elements

Elements (metals and non-metals) are arranged as groups and families on the Periodic Table. Metals in the same family have similar properties.

SCIENCE GRADE 9

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Chemical Reactions

Properties of elements are related to the electrons in the outer shell. Metals transfer electrons. Non-metals receive electrons. A compound represents electrons lent by the metal and electrons received by the non-metal.

Chemical reactions are represented by balanced chemical equations using chemical symbols and reflecting the number of electrons gained or lost by the reactants.

ACTIVITY OF METALS

*pp: 119-142

Time: 10 periods

Electrons and Activity

A study of the different structures of atoms reveals why some metals are more active than others.

Chemical corrosion (rusting, wearing away) is related to the chemical activity of the corroding agents.

Alloys are combinations of metals which resist corrosion.

We can plate objects with metals using electricity.

Using Different Metals
in the Home

The special properties of a metal determine its use - lead, copper, silver, steel, aluminum, etc.

An analysis of the special properties of a metal helps us to use it most effectively.

SCIENCE GRADE 9

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

EARTH SCIENCE

ASTRONOMY

*pp: 144-157

Time: 7 periods

The Study of Astronomy
and Space Science

We explore space, other planets, and stars to gain information about the origins of our own planet and its place in the universe,

Mirror and Lenses as
Tools of Astronomy

We use reflecting and refracting telescopes to gather light information about objects in space.

An understanding of the construction of telescopes aids in an understanding of how they operate in collecting light from distant bodies,

We use a spectroscope to analyze the spectrum of light coming from space,

The intensity of light from glowing bodies helps to provide information of distance, speed of movement, and temperature.

THE SOLAR SYSTEM

*pp: 158-169

Time: 8 periods

The Sun's Energy

The sun converts hydrogen nuclei into helium in a process known as nuclear fusion, with the release of heat and light. Sunlight provides energy for the earth and is involved in the manufacture of food by plants which releases oxygen to sustain life.

SCIENCE GRADE 9

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

The Motivation of
the Moon

The revolution of the moon around the earth and the relative position of the earth, sun, and moon cause different phases to be seen.

The moon's rotation is approximately the same as its revolution around the earth.

Tidal changes occur as a result of the gravitational attraction of the moon.

Solar and Lunar Eclipses

A study of the positions of the sun, earth and moon help us to understand how eclipses occur.

ENERGY IN THE SOLAR SYSTEM

*pp: 170-202

Time: 12 periods

Moving Objects In Space

The tendency of an object in space to maintain whatever motion it had originally is called inertia. Inertia keeps objects in motion.

The combination of gravitational attraction and inertia explains the orbiting motion of bodies in space.

The Earth's Rotation

The rotation of the earth on its axis causes night and day, deflection of winds and currents (Coriolis Effect), and apparent motion of celestial bodies.

Seasonal Changes

Seasonal changes occur as a result of the earth's inclination and its revolution around the sun so that different parts receive more heat-producing vertical rays.

The earth's movement in relation to other celestial bodies forms the basis of time measurements.

SCIENCE GRADE 9

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

PEOPLE IN SPACE

*pp: 203-223

Time: 7 periods

Astronauts Venture
Into Space

Space travellers face many dangers in space including radiation, temperature extremes, lack of air, and special problems in obtaining food and water, and eliminating wastes. Scientists have developed techniques for eliminating the obstacles facing space travellers. Constellations of stars are one of the many ways that help space travellers navigate in space.

BIOLOGY

CONTINUITY OF LIVING THINGS

*pp: 224-270

Time: 18 periods

Asexual Reproduction

The reproduction of an offspring from one parent is called asexual reproduction.

Organisms will reproduce asexually by binary fission, budding, and sporulation. In each case, the daughter cells are exactly like the parent cell.

Asexual reproduction involves mitosis, the division of chromosomes to each offspring without a reduction in the number for each cell.

New plants may be grown from parts of a plant (root, stem, leaf) asexually by a method called vegetative propagation.

Sexual Reproduction In
Plants

A study of parts of a flower aids in the understanding of sexual reproduction.

SCIENCE GRADE 9

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Sexual Reproduction
In Animals

Sexual reproduction involves the combination of two gametes coming from different parents, each bearing a reduced number of chromosomes.
The transfer of pollen from the stamen to the pistil involves a variety of agents (wind, water, insects, animals). This results in fertilization and gives rise to the seed or embryo.
The enlarged ovary, seed, stored food is called the fruit. Its purpose is to protect the seed, provide nourishment for the developing plant, and to attract animals to help disperse the seed.

Specialized organs in animals give rise to ova (female gamete) and sperm cells (male gamete).
Fertilization involves the transfer and penetration of the sperm cell into the ovum to produce a zygote. Fertilization restores the chromosome number characteristic of that species.
Fertilization and embryo development may occur outside the body (water-living animals) or inside the mother's body (land animals).

HEREDITY

*pp: 271-305
Time: 12 periods

Characteristics Are
Inherited

The work of Gregor Mendel forms the basis of our present understanding of the Laws of Inheritance.
Traits are located in the genes of chromosomes found in the nuclei of cells.
The recombination of gametes bearing reduced number of chromosomes restores the chromosome number in the offspring. The new individual now carries traits from both parents.
If genes from different parents are the same (tallness, brown-eyed, etc.) the individual has a pure trait. If different, the trait

SCIENCE GRADE 9

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Environmental Effect
on Traits

is called a hybrid. The dominant gene shows itself over the recessive.

Both heredity and the environment are important in trait development.

Genes are not affected by environmental conditions and changes. Eugenics is the science of plant and animal selection and breeding to improve the stock for greater yield.

CONTENT AREA AND TOPICSKILLS AND KNOWLEDGE

This course of study presents case studies of eight culture regions. Three culture regions are required. Each teacher should select from among the optional required studies and adjust suggested time allotments to meet the needs and interests of students.

Required Regional Studies*LATIN AMERICA

*Pp. 1-19

Time: 6 weeks

PEOPLE'S REPUBLIC OF CHINA

Time: 6 weeks

SUB-SAHARAN AFRICA

Time: 6 weeks

Optional Regional StudiesJAPAN

Time: 4 weeks

SOUTHEAST ASIA

Time: 4 weeks

THE SUB-CONTINENT OF INDIA

Time: 4 weeks

THE MIDDLE EAST AND MOSLEM SOCIETY

Time: 4 weeks

UNION OF SOVIET SOCIALIST REPUBLICS

(Bridge between East and West)

Time: 6 weeks

CONTENT AREA AND TOPICSKILLS AND KNOWLEDGELATIN AMERICA

(Sample case study approach)

Geographic Factors

The regional subdivisions of Latin America are Central America and Mexico, South America, and the Caribbean or West Indies.

Latin America is an area of great physical diversity, relatively isolated from world population centers and trade routes. Mountains, tropical rain forests, deserts, or semi-arid regions account for more than half of Latin America. These are obstacles to transportation and trade, inter-American cooperation, and even, in some cases, national unity.

Historical Development

Pre-Columbian Civilization

Indian populations consisted of the semi-migratory lowland tribes living in villages and the more sophisticated authoritarian, highland peoples (Incas and Aztecs).

Spanish Colonial Era

Indian and Spanish cultures interacted to produce a unique colonial society. Spanish colonial administration was highly centralized and authoritarian. Spanish control was reinforced by the activities of the Church.

Wars for Independence

The wars for independence from European powers had multiple causes and in some areas were also civil wars. The legacy of the colonial period and the wars for independence persisted in varying degrees. A major political crisis in the new nations was the conflict of interests among rural landowners, the rising middle class, and the peasant and urban masses.

Economic Development

Latin American nations face the challenges presented by untapped physical resources, geographic barriers, and an untrained labor force.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Land use	Agricultural production is low because of the lack of modern equipment, scientific knowledge and technology as well as the land tenure system. Agrarian reform policies include land taxes, extension services, agricultural credit, export production, and government investment in transportation and storage facilities.
Labor supply	Total employment opportunities are not keeping pace with the rapid growth of population and the shift of population from rural villages to cities.
Industrialization	Industrialization is proceeding slowly. More rapid industrialization will require larger markets, manpower with technical skill, and access to capital. The nations of Latin America are concentrating on improving the agricultural sector while at the same time raising industrial output.
<u>Social Structure</u>	Population distribution and growth rates vary within and among nations.
Races	Latin American populations are racially mixed. Racial discrimination towards Indians and Blacks exists in several nations. Social mobility is greatly limited.
Populations	Identifiable socio-economic groups are peasants and rural laborers, urban working class, urban unemployed, urban middle class, landed upper class, and business-oriented, urban upper class.
Class differences and similarities	The extended family is of considerable importance in all classes of Latin American society.
<u>Culture</u>	Indian, Spanish, European, and African peoples have contributed to the development of Latin American cultural diversity.

<u>CONTENT AREA AND TOPIC</u>	<u>SKILLS AND KNOWLEDGE</u>
Religious practices	The Roman Catholic Church has deeply influenced Latin American civilization.
Education	Improvements and expansion are needed in education to develop a responsible electorate and the skilled technicians and specialists needed in an industrialized society.
Arts	Art, architecture, music and literature reflect the Indian, Spanish, and African heritages of Latin America.
Literature	The cultural traits and values commonly associated with Latin America include personalism, formalism, and fatalism.
Languages	
<u>Politics and Government</u>	Politics has revolved around the personalities of leaders more than commitments to programs and principles. Violence is used to overthrow governments in much of Latin America. There have been hundreds of political revolutions since independence. The military is active in politics. The political process is limited to participation by the military, professional civilian politicians, urban elite, and churchmen.
<u>International Relations</u>	Many nations are trying to free themselves of economic dependence on foreign nations by developing self-help programs, encouraging industrialization, nationalizing industries, expanding trade opportunities, and organizing into associations. United States - Latin American relations have been characterized by alternating periods of United States interest and neglect, and conflict and cooperation.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Influences of the Regional
Culture in New York City

There are approximately 1½ million people of Latin American descent living in New York City. Many examples of the foods, clothing, arts, customs, personal and social values of Latin Americans can be found.

CURRENT AFFAIRS

Current affairs are studied to see how they affect children's lives and to assist in developing civic responsibility.

WORK STUDY SKILLS

Latitude and longitude are used to find locations.
Conflicting views and statements are presented.
Newspapers, magazines, radio and television are used as sources of current information on the world regions being studied.

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CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

LANGUAGE ACQUISITION IN
CHINESE, FRENCH, GERMAN,
HEBREW, ITALIAN, RUSSIAN,
AND SPANISH

Listening

The initial processes are the same as shown in FOREIGN LANGUAGES (FLES).

Listening is practiced by means of conversational and aural comprehension exercises, dictations, oral summaries and taped material.

Speaking

The initial processes are similar to those shown in FOREIGN LANGUAGES (FLES).

There is a wider range of language patterns in the dialogues, role playing, situation simulations, and personalized questions.

Reading is used as a basis for speaking activities.

Reading

The initial phase is similar to FLES.

Reading selections of cultural value are related to personal experiences. The skill to draw inferences from cognates and context is developed.

Writing

Copying of previously mastered material is followed by dictation and guided writing, e.g., completion of sentences and dialogues and responses to questions

Freer forms of writing include guided compositions, pen pal letters, brief summaries, and changes of narratives to dialogues.

FOREIGN LANGUAGES GRADES 6-7-8-9CONTENT AREA AND TOPICSKILLS AND KNOWLEDGE

Chinese Calligraphy

Calligraphy patterns are traced in the pre-reading period as well as in the initial phase of language learning.
Outline maps, pictures, and color charts are labeled, titled, and captioned.
A picture dictionary in Chinese is developed.

Cultural Information

Procedures on a more advanced level than those in FLES are used.
Fairs, festivals, fiestas, and assembly programs convey cultural information.
The cultural background of various countries is part of reading selections.
The transportation, currency, daily life in the cities, and first impressions are discussed by means of a simulated trip to the country.

FOREIGN LANGUAGES GRADES 6-7-8-9

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

GRAMMATICAL STRUCTURES OF
CHINESE, FRENCH, GERMAN,
ITALIAN, RUSSIAN AND SPANISH

CHINESE - LEVEL I

* pp. 35-47

Nouns

Nouns include specified and numbered nouns and those modified by stative verbs, clauses, and other nouns.

Pronouns

Included are personal, interrogative, and demonstrative pronouns and those used with personalized and specified nouns.

Measures

In addition to the measures ge, jr, ben, fu, nyan, shwang, tyau, ban and ke there are the verbal measures tsz, yisyaer, hwei, byaner and bu.

Verbs

Verbs include action, stative, auxiliary, compound, and equative verbs.
Included are co-verbs indicating direction, interest, and motion; the copula shr, auxiliary verbs hwei, and yau to indicate future; gwo as a co-verb to indicate past tense; gei as a main verb, co-verb, and preposition; the co-verb ba construction and compound verbs with lai and chyu.
Distinction is made among the operative verbs neng, hwei, and keyi.

*CHINESE: LEVELS I and II Curriculum Bulletin No. 7

FOREIGN LANGUAGES GRADES 6-7-8-9

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Adjectives

This includes youde ... youde and yousye...
yousye in parallel construction.

Adverbs

Subdivisions of this topic are the use of fixed and movable adverbs and of the expression dou, the distinction among hai, ye, and dzai, and the addition of shr for emphasis.

Particles, Prefixes
and Suffixes

Involved in this topic are the use of men (plurality), ma (interrogative), dz (noun diminutive suffix), le to show completed action, ne to show continuance, the negative particle mei before you, the particle swo, and the structural particle de.

Also included are the diminutive suffixes er and dz and the prefixes mei and meiyou.

Negatives

The use of the negatives bu and meiyou is included.

Interrogative Forms

The subtopics are the use of ne, of a particle at the end of a statement, of the affirmative-negative construction, of simple negative forms, of interrogative pronouns and adjectives, and of the use of alternatives.

Comparison

In the study of comparison the use of yidyaner, dasyau, and bi are dealt with.

FOREIGN LANGUAGES GRADES 6-7-8-9

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Simplified Characters

Included are dzwei as it relates to the superlative of adjectives and geng and dzwei as they relate to degrees of comparison.

Included in this topic are simplified characters of high frequency.

FRENCH - LEVEL I

*pp. 91-94

Articles

Articles include definite and indefinite, contractions with a and de, the use of de to show possession, the partitive, and the use of the article with parts of the day.

Nouns

The gender of nouns and the formation of the regular plural and irregular plurals are studied.

Pronouns

This includes the study of subject, direct object, interrogative, and demonstrative pronouns.
The subtopics dealt with are the agreement and position of adjectives, the agreement of regular feminine adjectives, irregular feminine forms, and interrogative and possessive adjectives.

Negatives

Included are ne ... pas, ne ... jamais, ne... plus, and ne... rien.

FOREIGN LANGUAGES GRADES 6-7-8-9

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Verbs

Verbs include the present tense of the three regular conjugations, the imperatives, and idioms with faire and avoir. The present tense of the following irregular verbs is taken: aller, dire, faire, lire, écrire, mettre, sortir, partir, prendre and vouloir.

Numbers

The cardinal numbers from 1 to 1000 are studied.

FRENCH LEVEL II

*pp. 95-96

Articles

This topic deals with the omission of the definite article with adverbs and nouns of quantity.

Adjectives

The use of ce, cette, ceci, and ces; the agreement and position of irregular adjectives; the comparison of regular and irregular adjectives is studied.

Pronouns

Included in this topic are disjunctive, direct, indirect, double object, and the interrogative pronouns qui, que, quoi, and qu'est-ce qui. The simple use of y and en in combination is also included.

Negatives

Ne...personne and ne...que are additional negative forms.

FOREIGN LANGUAGES GRADES 6-7-8-9

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Verbs

The verb forms included are the passé composé (with avoir) of the three regular conjugations and of the irregular verbs taken in Levels I and Level II; the passé composé of être verbs; and the imperfect of regular and irregular verbs.

The use of object pronouns with the passé composé; agreement of the past participle; reflexive verbs and verbs requiring spelling changes in certain tenses are also dealt with.

GERMAN - LEVEL I

*pp. 39-40

Articles

This includes all forms of the definite and indefinite articles.

Nouns

All cases of the plural of high frequency nouns are studied, along with the forms of weak nouns, such as Junge, Herr, Mensch, Student, and Nachbar.

Pronouns

Included are the singular and plural of the personal pronouns; polite form of address, familiar forms; the non-personal use of the pronouns in the third person; and der-words used as pronouns.

Adjectives

Besides uninflected adjectives, possessive and demonstrative adjectives are studied. Included are inflected adjectives as they occur in fixed phrases, such as Guten Morgen, Guten Tag, and Guten Appetit.

FOREIGN LANGUAGES GRADES 6-7-8-9

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Verbs

Subtopics are the present, simple past, compound past and future tenses of the verb; the compound tense with sein; the imperative; the present tense of the modal auxiliaries, the reflexive verbs sich freuen, sich kämmen, sich schämen and sich waschen; and irregular verbs of high frequency.

Prepositions

This involves the prepositions governing the genitive, dative and accusative.

Numbers

Included are the cardinal numbers from 1 to 100.

GERMAN - LEVEL II
*pp. 63-65

Nouns

This involves the gender of compound nouns and of those determined by suffixes such as chen, lein, heit, keit and ung; the plural of additional high frequency nouns; and the omission of the article in certain instances.

Adjectives

Included are the strong, weak and mixed declensions of adjectives, and the comparison of adjectives.

Pronouns

The pronouns include the relative pronouns, the wo-combinations used as pronouns, and the special use of wer and was.

FOREIGN LANGUAGES GRADES 6-7-8-9

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Verbs

This includes all tenses of the indicative; verbs with separable and inseparable prefixes; mixed verbs; modal auxiliaries in the present tense; verbs followed by the dative; and additional irregular verbs.

Word Order

This involves the word order in subordinate and relative clauses, and the use of interrogatives as subordinating conjunctions.

Numbers

This topic includes the study of all cardinal numbers and their use in addition, subtraction, multiplication, and division.

HEBREW - LEVEL I

*pp. 39-41

Nouns

Nouns include the plural of masculine and feminine nouns taught in Level I; irregular plurals; nouns with possessive adjectives; and dual plurals.

Adjectives

This involves the agreement and position of adjectives; demonstrative adjectives; and the predicative use of adjectives.

Pronouns

Included are subject pronouns; direct object; indirect object; and possessive pronouns.

Verbs

The verb forms are the present tense of Level I verbs; imperative forms; the infinitives of high frequency verbs; and polite expressions.

FOREIGN LANGUAGES GRADES 6-7-8-9

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Numbers

Included are ordinal numbers 1 to 10; cardinal numbers 1 to 100; and the telling of age.

Other Grammatical Structures

Other grammatical structures are the sign of the definite object, interrogative expressions, and the negative.

HEBREW - LEVEL II

*pp. 57-58

Nouns

This includes the possessive endings of masculine and feminine singular nouns; the possessive endings of segolate nouns; the plurals of segolate nouns, special masculine and feminine nouns; irregular nouns of high frequency; and dual plurals.

Adjectives

The comparative and superlative of adjectives are studied.

Numbers

Included are the ordinal numbers from 1 to 1000, and the cardinal numbers from 1 to 100.

Verbs

Subtopics are kal of intact; pe alef, pe yod, pe nun, ayin vav, ayin yod, lamed alef and lamed he verbs; and the pi'el of intact verbs.

ITALIAN - LEVEL I

**pp. 91-93

Articles

This involves the definite and indefinite articles; the use of di to show

FOREIGN LANGUAGES GRADES 6-7-8-9

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

possession; and contractions with a, da,
di, in, su, con, and per.

Nouns

Included are the gender of nouns ending in o,
a, and e, and regular and irregular plu-
rals of nouns.

Adjectives

Classes of adjectives; the agreement and posi-
tion of adjectives; demonstrative adjec-
tives; and adjectives with mixed genders
are included.

Pronouns

Subject, object, interrogative, and relative
pronouns are dealt with.

Verbs

The tenses dealt with are the present and pre-
sent perfect of the three regular conju-
gations, and the present tense of irregu-
lar verbs.

Numbers

The cardinal numbers 1 to 1000 are studied,
along with simple arithmetical expres-
sions such as e, più, meno, per, diviso
per. The ordinals from 1 to 10 are also
dealt with.

ITALIAN - LEVEL II

*pp. 94-95

Nouns

The plurals of nouns ending in -cia, -gia
and -ista; and masculine nouns ending in
-o and having a feminine plural ending
in -a, are included.

FOREIGN LANGUAGES GRADES 6-7-8-9

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Adjectives

Subtopics are possessive adjectives; interrogative forms quale and quanto; demonstrative adjectives questo and quello; and the comparison of regular adjectives.

Pronouns

The pronouns dealt with are possessive, interrogative, direct and indirect object, demonstrative, and relative pronouns. Included are single pronoun objects with the imperative, and pronoun objects with ecco.

Verbs

The topics included are the present perfect with irregular past participles; the future of regular and irregular verbs; reflexive verbs; the imperative mood; the formation of the conditional, and the use of potere, dovere, and volere.

Numbers

All cardinal numbers and the ordinals up to twenty are dealt with.

RUSSIAN - LEVEL I

*pp. 40-43

Nouns

The singular and plural of all declensions, and animate and inanimate objects are included.

Pronouns

This involves the personal, possessive, demonstrative, relative, and interrogative pronouns.

FOREIGN LANGUAGES GRADES 6-7-8-9

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Adjectives

Included are agreement with nouns; the declension of the hard and soft endings in the singular and plural, and the use of adjectives as nouns.

Adverbs

Subtopics are the positive degree taken from the short form of the neuter adjective; adverbial phrases and adverbs denoting place and direction to and from a place.

Prepositions

Included are high frequency prepositions governing the genitive, dative, accusative, and the instrumental and prepositional cases.

Spelling Rules

The replacement of letters in cognates, notably w, h, th, and u in au and eu, is studied.

Verbs

Among the topics are the present, past, and future of the high frequency perfective and imperfective verbs of motion and reflexive verbs.

Numbers

This involves the study of the declension of cardinals 1 to 30, the nominative only of cardinals 31 to 100, and the declension of ordinals 1 to 30.

SPANISH - LEVEL I

*pp. 94-96

Articles

Included are the singular and plural of the definite and indefinite articles;

*FOREIGN LANGUAGE REVISION PROGRAM: SPANISH
Experimental Edition June 1975

FOREIGN LANGUAGES GRADES 6-7-8-9

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Nouns

contractions with a and de, and the use and omission of the article in specific instances.

Subtopics are the number and gender of nouns, and the use of the personal a and of de to show possession.

Pronouns

The direct object pronouns and their position when they are used with the infinitive, and the present tense are studied.

Adjectives

This involves the number and gender of adjectives, simple agreement, possessive and demonstrative adjectives, and the use of adjectives with the exclamatory and interrogative que.

Also included are common limiting adjectives such as otro, mucho, poco, mismo, todo, bastante and demasiado, and the short forms of bueno, malo, primero, tercero, ciento and uno.

Interrogatives

Interrogative expressions such as cómo, dónde (adónde), por qué, cuál, quién (a quién, de quién), cuánto, and qué are studied.

Negatives

This involves the placement of no, and the negatives nada, nadie, and nunca.

Question Formation

This includes inverted word order and the use of expressions such as ¿no es verdad? and ¿no?.

FOREIGN LANGUAGES GRADES 6-7-8-9

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Verb Structures

Included are the present tense of regular and selected irregular verbs; the preterite of regular verbs, the use of hay and había, the principal uses of ser and estar, the complementary infinitive, and the expressions ir a to express future, and para, plus the infinitive, in response to ¿para que?

Numbers

The cardinal numbers from 1 to 100 and the ordinals from 1 to 10 are studied.

SPANISH - LEVEL II

*pp. 97-99

Articles

This includes the masculine article with nouns ending in -ma, -pa, and -ta, and the use of articles with time expressions; common geographical terms; reflexive verbs to replace the possessive adjective with parts of the body and articles of clothing, and nouns of weight and measure.

Nouns

The comparison of equality and inequality, such as tanto talento como and mas diner que, is studied.

Pronouns

Included are the indirect object with its redundant use, as in Le doy la plata a Pepe; the indefinite pronouns algo, alguien, and todo; and the demonstrative pronouns, including the neuter forms esto, eso, and aquello.

FOREIGN LANGUAGES GRADES 6-7-8-9

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Adjectives

Other subtopics are the relative pronouns que and quien(es) after a preposition; and the use of object pronouns for clarification and emphasis, as in the sentence Le escribió a él.

This includes the short forms of grande, alguno, ninguno, and santo; the comparison of equality and inequality; and superlative endings.

Adverbs

Formations with -mente and the use of adverbs in comparisons of equality and inequality are studied.

Verb Structures

This involves the preterite of irregular verbs; the imperfect of regular and irregular verbs; a comparison of the uses of the imperfect and the preterite; the idiomatic use of hace plus the present tense, and hace plus the preterite.

Also included are the future of regular and irregular verbs; the use of the present tense to denote the future; the conditional of regular verbs and common verbs, followed by a and de before the infinitive.

Additional topics are radical-changing verbs; orthographic-changing verbs; infinitives after prepositions, as in después de comer and sin hablar; gustar, and polite commands.

FOREIGN LANGUAGES GRADES 6-7-8-9

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Numbers

This involves all cardinal numbers.

LATIN - LEVEL I

Vocabulary

*pp. 8-12

Latin vocabulary is acquired through context and a study of synonyms, antonyms, roots, prefixes, and suffixes.

Forms

*pp. 12-14

The essential structural difference between Latin and English lies in the high degree of inflection inherent in the Latin language. Emphasis is on the forms of high frequency, such as those of the active voice and the nominative, accusative, and ablative cases. Forms are to appear in context.

Reading

*pp. 15-20

Vocabulary, forms, and grammatical structures are preparation for reading. Reading is practiced by intensive and extensive reading lessons. The translation of Latin should emphasize the meaning of a thought unit rather than that of individual words.

Memory Work

*pp. 21-22

Many Latin phrases, proverbs, literary quotations, and abbreviations are widely used in English.

*LATIN: LEVELS I-IV Curriculum Bulletin No. 19

FOREIGN LANGUAGES GRADES 6-7-8-9

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

Derivation and Word
Study
*pp. 22-24

Roots, prefixes, and suffixes show the profound influence of Latin on the English language

Dialogue
*pp. 25-28

Simple language patterns can be used in dialogues.
Memorized dialogues can be adapted and personalized.

Cultural Information
*pp. 39-41

The periods of Roman history; Roman government; classes of society; famous people in Roman history; Roman life, education, dress, recreation, religion; and famous myths are topics of cultural information.

CONTENT AREA

SKILLS AND KNOWLEDGE

FOOD, NUTRITION AND HOME EXPERIENCES

Nutrition and Food

*pp. 30-34

*pp. 45, 46

pp. 7-11

*pp. 11-12

**pp. 185-190

**pp. 33-158

**pp. 185-190

*pp. 56

**pp. 191-218

The adolescent body has specific food needs.

Calories are a measure of heat and energy.

Each nutrient has a specific function in the utilization of food by the body.

The daily food intake should meet the energy and nutrient needs of the body.

Guides to good nutrition consider the many factors that affect food needs and utilization. (i.e. Basic Four, Star of Good Eating)

Meal plans should meet the varied needs of the family group. (Include the infant, young child, lactating mother, grandparent, etc.).

Accurate measurements and reading ability contribute to basic cooking skills.

Food can be nutritionally prepared and attractively served using basic cooking techniques.

Special consideration should be given to circumstances such as teen-age pregnancies, active sports participation, adolescence, illness and recuperation.

American and foreign meals use similar food items in different combinations.

Nutrition food guides may be used to evaluate nutritional strength and shortcomings of food patterns of other lands.

CONTENT AREAConsumerism

*pp. 34-35

*pp. 36, 49, 51

**pp. 27

Management In School
And Home Activities

*pp. 37, 48, 51

**pp. 28

SKILLS AND KNOWLEDGE

Labels provide important information.

Specific criteria and standards for selection of food products should be applied.

Many factors influence the selection, purchase and use of fresh, preserved, or convenience foods.

Shopping manners are responsibilities of a good consumer.

Evaluation of factors affecting the use of money increases family satisfactions.

Money management is essential in planning for personal and family spending.

Cost of computing menus prepared in class may be used as a gauge for evaluating menus used in the home.

Consumer information is necessary for the food shopper, such as evaluating newspaper ads, understanding grade, labeling, and money value of services.

Cleanliness and order can contribute to happy homes.

Specific methods for care and maintenance of appliances are essential (range, refrigerator, counter tops).

Suitable maintenance of furnishings preserves an attractive appearance.

Analysis and decision-making are basic in managing home activities.

Effective work habits and scheduling of time are valuable in performing home activities.

Work plans for daily and periodic care of the home should involve all family members.

Storage facilities should be arranged according to frequency of use.

Proper storage of food and equipment is basic to efficient home management.

Cleaning agents perform specific functions.

CONTENT AREA

SKILLS AND KNOWLEDGE

*pp. 127-128

Student leadership is developed through assignments of special jobs and routine responsibilities.

Safety

*pp. 35

*pp. 127

**pp. 19-26

Develop safety attitudes and habits in school.

Apply learnings of safe practices to the home, school, and community.

Sanitation

*pp. 34

*pp. 36

**pp. 27-31

Proper dishwashing procedures are necessary for cleanliness and health.

Laundry procedures are an essential knowledge for school and home.

Principles of sanitation and proper storage of food are practiced in each food preparation lesson.

Social Acceptability Within
The Home

*pp. 46, 47

**pp. 13-15

*pp. 38, 39

**pp. 13-16

Gracious hospitality includes many styles of table setting, such as family, buffet, and individual service.

Correct table setting and service add to eating comfort. Acceptable table manners and table conversation help make mealtime pleasant.

Members of the family have specific roles when guests come into the home.

Guests have specific roles when visiting.

CONTENT AREA

SKILLS AND KNOWLEDGE

Getting Along In The Family

*pp. 39, 40, 50

The work and happiness of the home depend upon the contribution of each family member.
Each family member has obligations, contributions, and rights.
The family influences the development of an individual's competence in adjusting to society.
Good manners in school include the use and care of facilities.
Consideration of others is the basis of behavior in public places.
Community services to the home and family are more efficient if participants are cooperative.
Competencies in developing human relationships involve skill and practice.
Leisure time provides opportunities for shared family and individual activities.

Looking Ahead To Careers In
Home Economics, Foods, And
Nutrition

*pp. 40, 41

Survey various career possibilities in Home Economics, Foods, and Nutrition

Become acquainted with high schools offering special programs leading to employment and post-secondary opportunities

INDUSTRIAL ARTS GRADES 6-7-8-9

CONTENT AREA AND TOPICS

CERAMICS

Sources of Clay

* pp. 86-88
Time 5%

Hand-Building Methods and Sculpture

* pp. 42-47, 50-55
Time 30%

Molds and Casting

pp. 58-69
Time 15%

Decoration and Glazes

* pp. 76-85, pp. 46-49
pp. 88-99
Time 15%

Potters' Wheel

* pp. 70-75
Time 10%

SKILLS AND KNOWLEDGE

Different types of clay are used to make a variety of ceramic products.

Clay is found locally and in all parts of the world.

Hand-building methods in ceramics include the construction of projects using pinch, slab, and coil activities.

Sculpture work may include hollow core or solid pieces, and may use appendages to shape animals and other creative forms.

Ceramic products can be produced in quantity by using molds.

Molds are made from plaster of paris, and may be designed as one, two, three or more pieces.

Liquid clay or slip is poured into molds.

Glazes are used to protect and decorate ceramic objects. Different chemicals and oxides are used in preparing glazes.

Glazes may be applied by brush, painting, dipping, and spraying.

The potter's wheel is used to build projects by moving a ball of clay on a turning wheel; objects produced are hollow and curve shaped.

Attachments used in conjunction with the potter's wheel for mass production activities are jiggering and jollying.

INDUSTRIAL ARTS GRADES 6-7-8-9

CONTENT AREA AND TOPICS

Kiln and Firing
* pp. 38-41
Time 5%

Industrial Ceramics Practices
** pp. 99-109
Time 5%

SKILLS AND KNOWLEDGE

A kiln is used to fire clay to a specific temperature, making it hard and durable.

Industrial processes are used to produce ceramic articles in quantity.

Machines used are the ball and pug mill; press, glass sagger, and gang molds; jiggering and jollying attachments; and silk screen appliqué.

INDUSTRIAL ARTS GRADES 6-7-8-9

CONTENT AREA AND TOPICS

SKILLS AND KNOWLEDGE

DRAFTING

Drafting As A Language
* pp. 1-8, pp. 12
Time 10%

Mechanical drawings provide a method of transmitting ideas, designs, methods of construction and other information which cannot be satisfactorily transmitted by the written or spoken word. The language of drafting is universal almost to the extent that mathematics is a world-wide language.

Types of Mechanical Drawings
* pp. 44, 45, 48, 49
50, 51, 62, 63,
66, 67
Time 60%

The three basic types of mechanical drawings are orthographic projections, isometric projections, cabinet drawings. Each is suited to different purposes, and sometimes two types may be required on complex drawings.

Some drawings are not merely for the transmittal of information but are the only means of determining construction techniques, sizes or shapes.

One example of this is the development of sheet metal patterns.

Lettering and Symbols
* pp. 18, 19, 30, 31,
70, 71
Time 20%

Lettering is an integral part of drafting techniques. Proper labeling and dimensioning of drawings are essential to the completeness of the information recorded in the drawing.

Standard symbols and signs are used as shortcuts for understanding and simplification of drawings. Many symbols and signs are universally used by draftsmen, as part of the drafting language.

Drawing Reproductions
* p. 72
Time 10%

Mechanical drawings are reproduced by tracings and blue or white prints, and by many photographic and xerographic processes.

Computers can be programmed to reproduce drawings, even changing viewing angles, at the will of the operators, on paper or on screens.

736

737

* DRAFTING EXPERIENCES FOR
INTERMEDIATE SCHOOL PUPILS
CJR. BULL. 1966-67 NO. 9

INDUSTRIAL ARTS GRADES 6-7-8-9

CONTENT AREA AND TOPICS

ELECTRICITY/ELECTRONICS

Electron Theory

* pp. 66-67
Time 5%

Conductors and Insulators

* pp. 69-70
Time 5%

Electrical Circuits

* pp. 80-87
Time 15%

Sources of Electricity

* pp. 104-109
Time 5%

Magnetism and its Application

pp. 112-119
Time 15%

SKILLS AND KNOWLEDGE

Electricity is based on the theory that electrical current is the movement of electrons.

The units used to measure electricity are the ampere, the volt, and the ohm.

Electrons can be made to do various things according to the material through which they pass.

Conductors and insulators have different characteristics and uses.

Symbols and schematics are used universally in electrical circuitry.

The essential parts of any circuit, when properly connected, form the path for the flow of electricity.

Generators are the major source of electricity; however, other sources for electricity can be obtained from chemicals, light, heat, pressure on a crystal, and by the action of living organisms.

The basic principles of magnetism provide the fundamentals for the generator, which is the primary source for electricity.

The transformer and motor operate on the principle of magnetic attraction and repulsion.

* ELECTRICITY/ELECTRONICS FOR INTERMEDIATE & J.H.S. Curriculum Bulletin No. 11

** SCHOOL SHOP SAFETY MANUAL Experimental Edition October, 1977

INDUSTRIAL ARTS GRADES 6-7-8-9

CONTENT AREA AND TOPICS

Testing and Measuring Electricity
* pp. 132-138
Time 10%

Electricity in the Home
* pp. 140-147
pp. 8, 9
Time 15%

Electronics
* pp. 156-164
Time 15%

Communications Activity Center
Time 5%

SKILLS AND KNOWLEDGE

Many electrical testing instruments are designed for specific applications while others, such as the multi-meter, are multi-purpose.

Electronic test instruments such as the oscilloscope and tube tester are highly sophisticated tools designed to trace an electrical signal.

The principles of electrical safety must be practiced in order to avoid the hazards of home accidents involving electric shock.

The best safety rule to follow is to avoid contacting "live" electrical wires, terminals and connections. Protective devices are designed to open the circuit in the event of over-current.

Electrical codes and regulations are necessary to provide for the safety of persons and property.

Electricity enters the home through the service entrance; is metered at the kilowatt - hour meter; is distributed throughout the house through the distribution center to general purpose circuits; appliance circuits, and individual circuits.

The vacuum tube and transistor provide the basic components for radio transmission.

Radio reception occurs when the tuner receives the radio waves through the antenna. The speakers then convert the electrical signal into a sound wave.

The Communications Activity Center is designed to use the short wave radio equipment in the school to promote and develop amateur radio enthusiasts.

INDUSTRIAL ARTS GRADES 6-7-8-9CONTENT AREA AND TOPICSSKILLS AND KNOWLEDGEGENERAL CRAFTS

Mechanical Drafting
* pp. 3-9
Time 10%

The development of layout, measurement, and design capabilities is developed through mechanical drafting. The use of drafting materials and equipment is the means whereby creative and mechanical concepts are put in final working form.

Art Metal
* pp. 10-21
Time 10%

A variety of processes is used to shape and decorate metals as art forms, and includes enameling, cloisonne, repousse and polishing.

Plastics
* pp. 45-48
Time 10%

Plastics is a material that can be shaped and formed to the specific needs of industry with ease. The processes of forming, shaping, bonding and decorating plastics are introduced as they relate to project construction.

Aerospace
** pp. 1-100
Time 10%

The fundamental concepts of aerospace technology are inherent in model spacecraft. The construction of flying model airplanes demonstrates the principles of flight and the special construction precautions necessary for building safe aircraft.

Ceramics
* pp. 25-33
Time 10%

A variety of processes is used to shape and decorate clay and includes mosaic tile and relief work, incising, graffito, and glazing.

Leatherwork
* pp. 34-45
Time 10%

Animal hides are transformed into leather which is used for making articles of clothing and accessories. Leather work processes include material preparation, carving, stamping, finishing, and fastening.

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* INDUSTRIAL CRAFTS 6th GRADE Experimental Edition

** INDUSTRIAL ARTS AEROSPACE For Intermediate and Junior High School Part 2 Aug. 1970; Experimental Edition

*** TEACHERS HANDBOOK FOR THE HANDICAPPED

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INDUSTRIAL ARTS GRADES 6-7-8-9

CONTENT AREA AND TOPICS

Marine Technology
* pp. 78-81
Time 10%

Mass Production
*** p. 272
Time 15%

SKILLS AND KNOWLEDGE

Maritime activities are a major industrial endeavor in the New York City area.

Marine technology supports this endeavor with instruction in the mechanics of boat building, marine hull maintenance and repair, and the operation of small engines.

The growth and development of industry is dependent upon mass production. The techniques of mass production involve product design, advertising, packaging, and merchandise distribution.

INDUSTRIAL ARTS GRADES 6-7-8-9

CONTENT AREA AND TOPICS

SKILLS AND KNOWLEDGE

GRAPHIC ARTS

Hand Composition and Presswork

- * pp. 5-17
- pp. 50-58
- Time 20%

Hand composition is the orderly assembly of type and cuts for the printed page.

The tools and equipment of composition include hand type, composing stick, leads, slugs, galleys, and the printer's galley.

Hand and power platen presses use a metal chase to hold the locked-up type during the printing process.

Offset Preparation and Printing

Offset printing is a process developed from lithography, using the principle that oil and water do not mix.

The printing plate is made from a "paste-up" of different elements.

Elements may include hot and cold type composition, photos and half tones, drawings and decorations.

The offset press operates with a positive plate, offsets the printing to a blanket, and then in turn to the printed page.

Bookbinding

- * pp. 18-25
- pp. 83-93
- Time 15%

The binding of printed pages can be done by signature, spiral binding, stapling, or glueing.

Covers may be made of cardboard and cloth or heavy-weight paper.

Picture Reproduction

- * pp. 24-42
- pp. 73-75, 94-96
- Time 20%

The production of pictures may be made by dry-point engraving, linoleum block printing, and/or silk screen printing. Each method meets a particular need and produces a definite style of printing.

* GRAPHIC ARTS 7, 8 & 9 Curriculum Bulletin No. 13

** GRAPHIC ARTS FOR SECONDARY SCHOOLS Experimental Edition March, 1970

*** PASTE MAKE-UP-A TEACHING GUIDE

INDUSTRIAL ARTS GRADES 6-7-8-9

CONTENT AREA AND TOPICS

Photography

** pp. 59-64
Time 10%

Rubber Stamps

** p. 94

SKILLS AND KNOWLEDGE

Photography is the process of reproduction of images by exposing light-sensitive materials to light. Pictures are "printed" from negatives.

Rubber stamps are made in a two-step process involving a molding board and the vulcanization of the rubber type.

INDUSTRIAL ARTS GRADES 6-7-8-9CONTENT AREA AND TOPICSMETALWORKING

Bench Work

- * pp. 34-40, pp. 65-67
Time 20%

Machine Operations

- * pp. 41-43, pp. 77-96

Sheet Metal

- * pp. 44-50, 97-114
Time 20%

Art Metal

- * pp. 50-64, pp. 115-134
Time 20%

Ornamental Metal

- * pp. 61-63, pp. 147-161
Time 10%

SKILLS AND KNOWLEDGE

The fundamental skills and knowledges in the use of basic handtools are used to fashion ferrous and non-ferrous metals into useful products.

The safe and effective use of these tools and shop equipment will have application to other metalworking areas.

The use of power machines in construction and fabrication provides opportunities to make more challenging projects.

The machine can be used as an aspect of mass production techniques.

Sheet metal work requires the working knowledge of mathematics in the design, layout, and fabrication of related projects.

Special joints requiring folding, riveting, and/or soldering are employed in this area.

Art metal and jewelry are designed and made of non-ferrous metals, and include techniques in copper enameling, lapidary, and repros.

The additional skills required in this area include working with copper, aluminum, German silver and semi-precious stones.

The skills in scrolling, bending, riveting, planishing, and peening of wrought iron are inherent in this area.

Early American (colonial) craftsman fashioned their household articles with these materials and with these techniques.

INDUSTRIAL ARTS GRADES 6-7-8-9

CONTENT AREA AND TOPICS

Cast Metal

* pp. 59-60, pp. 135-146
Time 5%

SKILLS AND KNOWLEDGE

The process of pouring molten metals into sand or metal molds has many practical applications in the school shop and in modern industry.

Special consideration is given to personal safety in the handling of molten metals.

INDUSTRIAL ARTS GRADES 6-7-8-9CONTENT AREA AND TOPICSSKILLS AND KNOWLEDGEPLASTICS

Orientation to Plastics Technology

* pp. 70-90
Time 5%

The study of plastics technology involves the history and growth of the plastics industry, and an analysis of the types of plastics used in a variety of consumer products.

Molding and Forming of Thermoplastics

* pp. 26-39
Time 30%

The molding and forming of thermoplastics is introduced through the processes of injection and pressure molding, extruding, vacuum forming, strip heat shaping, and encapsulating with plastic resins.

Plastics Bonding Process

** pp. 254-267
Time 25%

The bonding of several plastic parts is an integral function of plastics-product production. This is accomplished through the processes of cohesive and adhesive cementing, heat sealing, laminating, fibre glass molding, and hot air welding.

Vinyl Dispersion

pp. 247-251
Time 10%

The action of heat and centrifugal force on colored vinyl powders, placed in rotational molding-oven molds, produces many types of hollow and intricately shaped objects.

These may be bottles, cases, irregularly shaped life forms, and useful dispensers which are seamless and require no further fabrication.

Plastics Decoration

* pp. 42-44
Time 15%

Surfaces of plastics can be altered for useful and decorative purposes.

Directional signs, name tags, identification plates, and polished jewelry items can be produced in quantity by engraving, hot stamping and design appliqué.

* PLASTICS FOR SECONDARY SCHOOLS. Experimental Edition June 1967

** TEACHERS HANDBOOK FOR THE HANDICAPPED

INDUSTRIAL ARTS GRADES 6-7-8-9

CONTENT AREA AND TOPICS

SKILLS AND KNOWLEDGE

WOODWORKING

Wood Structure and Growth

* pp. 53-55
Time 5%

The particular growth patterns and grain structure of wood determine where and how it is used, and how it is fabricated into useful products. Lumbering, and the preparation of wood for use, are facets of the woodworking industry.

Layout and Testing

* p. 7
p. 9
Time 5%

Layout of shapes and sizes of wood pieces is made directly on the lumber being used.

Throughout the process of fabricating wooden products, tests for squareness and size are made to insure proper fit for assembly.

Hand Tool Bench Work

* pp. 7, 8
pp. 9-13
Time 30%

A considerable part of the production of wood projects requires the use of traditional woodworking hand tools and power portable tools.

Skill in hand and portable power tool operation is essential to proper completion of wood projects.

Machine Tool Use

** pp. 15-19, 45-60,
89-98
Time 20%

The use of machine tools, such as the scroll saw or drill press, is needed for completion of most wood products. Specialized machines, such as the wood-turning lathe, produce specialized shapes required in wood production.

* WOODWORKING - GRADES 7, 8, 9

CUR. BUL. 1965-66 NO. 14

** INDUSTRIAL ARTS WOODWORKING

SECONDARY SCHOOLS

CUR. BUL. 1963-64 NO. 10

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INDUSTRIAL ARTS GRADES 6-7-8-9

CONTENT AREA AND TOPICS

Construction of Joints

- * pp. 7, 8
- pp. 14, 93-95
- Time 20%

Wood Finishing

- * pp. 8, 9
- pp. 14, 95
- Time 10%

Tool Sharpening and Maintenance of Tools

- * p. 8
- pp. 15
- Time 10%

SKILLS AND KNOWLEDGE

The assembly of parts of a wooden product requires various wood joints.

Joinery involves the construction of particular joints for particular uses, such as dovetail joints for drawer fronts, or mortise and tenon joints for table legs.

Simple joints are made with glue and nails or screws.

Most woods require finishing, as a protection and for esthetic purposes in wood products.

Natural finishes involve the use of stains, fillers, and coatings such as varnish or shellac.

Finishes, such as oil based or latex paints, cover the natural grain of wood.

Since woodworking requires razor-sharp edged tools, frequent sharpening and honing are needed.

The use of grinders, oil stones, slip stones, and honing techniques keep edged tools sharp.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

ORIENTATION TO THE LIBRARY MEDIA CENTER
(grades in junior high schools)

Tours, diagrams and floor plans explain facilities and circulation procedures.
The library is a cultural force which permits life-long learning.

USE OF LIBRARY MEDIA RESOURCES

Microfilm and Microfiche

Microfilm is a continuous roll of film containing a photographic image of printed or graphic materials, reduced for economical storage.
Microfiche is a sheet of film containing photographic images of printed or graphic materials, reduced.
Magazine and newspaper articles on microfilm are read to answer questions on a given topic.

Specialized Reference Books

The New York Times Index is used to locate specific articles which have appeared in the New York Times.
Specialized reference books, such as Current Biography, The Book of Popular Science, The Guinness Book of World Records, give detailed information on a given subject.
The Readers' Guide to Periodical Literature is an index to current articles in a variety of types of magazines.

Giving Credit

Credit is given to the source(s) of facts or theories through the use of quotation marks and footnotes.

INTERPRETATION OF LIBRARY MEDIA RESOURCES

Fact and Opinion: Differentiating

Facts and ideas are inferred from material read, listened to, and viewed.
Word clues such as "always" and "everyone" help distinguish fact and opinion.
Editorials and articles by columnists represent an interpretation of facts or issues.

CONTENT AREA AND TOPICSKILLS AND KNOWLEDGE

Unsubstantiated statements are identified.
Propaganda devices are sometimes used in printed and audio-visual materials; e.g., testimonials, tone of voice, emotion-laden words.

Critical Use of Sources

Newspapers:

There are different types of news items in a newspaper.
Recognizing differences in coverage and emphasis of events, as written up in more than one newspaper, is valuable.

Reference Books:

Bibliographies in encyclopedias and other non-fiction books are sources of additional information on a given topic.
A quick examination of the front and back matter and illustrations of a book is a good way to evaluate its usefulness as a specific source of information on a particular topic.

Organizing Material

The choice of a topic for a report involves:

- some interest and/or knowledge of the subject;
- the availability of material determined by a preliminary search for information;
- an overview of the subject from an encyclopedia.

Ideas and information are summarized in an outline that relates main ideas to subordinate ones.
Generalizations are made from statistical and narrative data.
Audiovisual productions, e.g., slide-tape programs, are prepared as reports for class presentation.

Approaches to Literature

Adolescent growth is explored through literature written expressly for the teenager.
The approach and interpretation of an author may be influenced by the time or place at which the work was written.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

BASIC TECHNIQUES

*pp: A4-A5

Proper typing posture. The back is straight; feet are flat on the floor with one foot slightly ahead of the other; the body is a handspan from the machine, centered in front of the j key.

Returning to home keys. At the beginning stages of skill acquisition, all fingers return immediately to home keys, asdf jkl;.

Correct stroking. The fingers strike the keys in a ballistic motion; the appropriate finger darts forth, strikes the key and is quickly withdrawn and is readied for the next stroke.

Using space bar. The right thumb hovers over the space bar. It strikes the space bar quickly. A slow motion will cause the typewriter to skip more than one space.

Returning the carriage. On manual machines the f, d, and s fingers are placed against the carriage return lever. A quick toss-of-the-wrist action is used to return the carriage to the margin. On electric machines, the right little finger is extended to tap the return key.

Changing paper. The paper bail is raised, the paper placed against the paper guide, and the paper is quickly rolled into the machine. The paper release may then be disengaged to allow for the paper to be straightened. It is then re-engaged, and the paper bail is placed on the paper with the rollers dividing the paper approximately into thirds.

BASIC MACHINE PARTS

*pp: A5-A6

Paper table and guide. The paper table is used for resting the paper as it is readied for insertion into the typewriter. The paper guide is set at a number suggested by the textbook being used by the class.

Paper release. Removal of paper from the machine, and the straightening of the paper after insertion, require use of the paper release. Never should the paper be rolled out of the machine.

Carriage return. This device is employed for returning the machine to the margin while advancing the platen. Students should be discouraged from using the platen knobs for this purpose.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

BASIC MACHINE PARTS

*pp: A5-A6

Space bar. The space bar may be either single or dual level. On those machines equipped with a dual level action space bar, depressing it to the second level will cause the spacing action to repeat until the space bar is released.

Paper bail. This is used to hold the paper in place and as a guide in proofreading. Most paper guides are ruled with space markings.

Tabulator. The tabulator key or bar is used for indenting paragraphs and advancing the carriage or typing element to predetermined carriage or carrier settings. Use of the tabulator mechanism should be postponed until it can be taught in context.

Backspace key. This key is used for spacing the typewriter in a rightward direction. It is employed for striking over in rough draft work, constructing special symbols not on the typewriter, backspace calculation of center points, and pivoting.

Shift key and lock. The shift keys are operated with the little fingers. To obtain the uppercase of any of the keys on the right side of the keyboard, the left shift key is used; the right shift key is used for uppercase characters on the left side of the keyboard. The shift lock is employed for typing successive uppercase characters. It is released by depressing either of the shift keys.

Line-space regulator. The line-space regulator is used to control the space between lines of typing. On some machines the line-space regulator may be set for one-and-a-half spacing.

Margin stops. The margin stops are used to stop the machine at predetermined settings.

KEYBOARD MASTERY

*pp: A6-A8

Alphabetic keys. Through specially constructed copy in the elementary skill acquisition stage, along with paced practice, the student is guided through progressively higher levels of skill attainment. The teacher stresses process of correct stroking dynamics rather than

CONTENT AREA AND TOPICSKILLS AND KNOWLEDGEKEYBOARD MASTERY

*pp: A6-A8

correct typescript. The order of priorities in teaching the alphabetic keyboard is first, technique; second, speed; and last, accuracy of product.

Shift keys. Through direct observation, the teacher will determine whether or not students are shifting correctly.

Punctuation marks. Through observation of the student's typescript, the teacher will determine whether or not the student is applying acceptable typing style to the typing of punctuation marks.

Number keys. Although the number keys are important, and are becoming increasingly so, time constraints in the middle school typing program prohibit skill acquisition on the numeric keyboard to the mastery level. These keys are taught for acquaintanceship skill. The training may serve as a basis for skill development at the mastery level later in the typewriting program.

Symbol keys. Develop mastery level skill only on high frequency symbol keys, such as the dollar sign, parenthesis, and the hyphen. The less frequently used symbols should be taught for acquaintanceship.

SKILL DEVELOPMENT

*pp: A9-A11

Speed of at least fifteen words per minute. Fifteen words per minute is the speed requirement of Level 1 of the New York State Typewriting Syllabus. It is assumed that the student will progress at least to Module II, which requires for completion a minimum sustained speed of twenty words per minute for three minutes. Attainment of speeds below twenty words per minute at the end of the course is not desirable, since it is generally agreed that the skill at these lower speeds is not automatized.

Efficient speed development requires goal setting by the teacher and student, and teacher-supervised, paced practice. Speed is efficiently developed through a systematic approach that includes such speed-building approaches as the pre-test, drill, post-test sequence, with the inclusion of spurt drills as part of the drill cycle.

Accuracy. This is the last factor to consider in the keyboard teaching phase. As with speed development, the same procedures should be employed,--goal setting, pre-test, drill, post-test.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

SKILL DEVELOPMENT

*pp: A9-A11

The teacher should direct the student to strive for speed and accuracy separately, and grade each separately. Error detection and correction. A flawless typescript produced within a minimum amount of time is the hallmark of an expert typist. To attain this, fuse together the separate skills of rapid and accurate keystroking, arranging type on paper, and detecting and correcting errors. Drill must be provided in correcting errors.

HORIZONTAL CENTERING

One word with an even number of characters.
One word with an odd number of characters.
Two or more words.
All caps.
All caps with hyphenated word(s).
Spread words and lines.
The teaching of centering is developmental. Start with one word with an even number of characters, and graduate to spread words and lines. Horizontal centering may be taught by either the backspace method or arithmetic method. For simple horizontal centering problems, the backspace method is the more efficient. Horizontal centering will serve as a foundation for solving tabulation problems.

VERTICAL CENTERING

*pp: B4-B6

Vertical lines per inch. Six vertical lines constitute one inch.
Lines per page or half page. There are sixty-six lines to an eleven inch sheet of paper and thirty-three lines to a five-and-a-half inch sheet.
Counting lines of copy. Provide practice in counting typed and blank typewriter lines.
Centering of several lines. Count the number of typed and blank lines. Subtract this number from the total number of available lines on the paper. Divide the results by two. The answer is the number of blank lines that should be allowed for top and bottom margins.
Block centering. Determine the longest line. Base horizontal margin calculations on the length of this line. To determine the vertical starting point, use the method described above for centering of several lines.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

SIMPLE ENUMERATIONS

*p. B6

Typing of enumeration with;
Arabic numbers less than 10.
Arabic numbers more than 10.
Capital-lettered items.
Roman numerals.
The key point to teach is the alignment of period in the enumeration letters and or numbers.

TYPING ON RULED LINES

*p. C11

Variable line-spacer. The variable line-spacer is used for resetting the writing line.
Ratchet release. This part is also used to reposition the writing line; but unlike the variable line spacer, it allows the typist to easily return to the original line of writing. One use of the variable line-spacer would be for typing exponents.
Centering items on ruled lines. This skill is particularly useful in forms typing.

PERSONAL - BUSINESS LETTERS

*pp: C12-C13

Letter Parts:
Dateline. The dateline may be typed at the left margin, immediately to the right of the center point, or pivoted from the right-hand margin. There are usually six lines between the date line and the inside address, but this may be varied to give a well-balanced appearance to the letter.
Inside address. The inside address must always be typed at the left margin. It is usually typed six lines below the dateline.
Salutation. The salutation must always be typed at the left margin.
Body. The body of a letter is usually divided into at least three paragraphs.
Complimentary close. The complimentary close may be typed at the left margin, immediately to the right of the center point, or pivoted from the right-hand margin.
Enclosure notation. The enclosure notation is always typed at the left-hand margin.
Dictator's initials. If the name of the originator is typed, the originator's initials should not appear as a notation along with the typist's initials.

CONTENT AREA AND TOPIC

SKILLS AND KNOWLEDGE

PERSONAL - BUSINESS LETTERS

*pp: C12-C13

Typists' initials. The typist's initials should only be included if the letter is not typed by the originator.
Typing of envelopes. Give students practice in typing various-sized envelopes. Include practice in typing the return address.

COMPOSING AT THE TYPEWRITING

Lists,
sentences,
paragraphs, and
reports.

Composing at the typewriter is a skill that must be learned. Begin by having students provide one-word responses and gradually advance to the composing of reports at the typewriter. Composing at the typewriter must not be started until the pupil has automatized his typing skill to between twenty and thirty words per minute.

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The Communication Arts
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*Titles and affiliations were those in force at the time the materials were prepared.

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Leonora Farber, J.H.S. 231 - District 29
Joan M. Flig, Reading Teacher - I.S. 53 Q
Sylvia Glass, Teacher - P.S. 189 -
District 6
Roslyn Gleimer, Reading Teacher -
District 22
Dorothy Green, Teacher - P.S. 19 M
Jerome Green, Principal - P.S. 111 M
Maria Guasp, Bilingual Coordinator -
District 19
P. Jerry Hutchins, Supervisor of Reading
Bureau of Reading State Education Dept.
Hortense P. Jones, Director, Center for
School Development
Michelle Jones, Title 1 Corrective
Reading Coordinator
Stanley Kaplan - Principal, P. S. 152 M
Harriet Kaufman, Teacher - P.S. 13 K -
District 19
Libby Kessler, Teacher - P.S. 189 -
District 6
Leslie Korant, Teacher Trainer -
District 19
David Krulik, Assistant Director,
Center for Bilingual Education
Marcia Lauffer, Reading Teacher -
P.S. 65 - District 19
Muriel Mandell, Coordinator, WEDGE
ESEA IV C
John Marcante, Assistant Principal,
English - I.S. 126 Q
Joseph Mehlman, Principal - P.S. 88 -
District 24
Elaine Mitchell, Assistant Principal,
English - I.S. 158 X
Elizabeth Mulligan, Teacher - P.S. 115 -
District 6
Harvey Nagler, Principal - P.S. 35 -
District 29
Ruth Peterkin, Teacher - P.S. 153 -
District 6

Maria Power, Principal - P.S. 13 -
District 19
Leonore Ringler, Professor, New York
University
H. Alan Robinson, Professor, Hofstra
University
Florence Rosler, Reading Lab Teacher -
P.S. 183 - District 27
Beverly Taylor, Reading Coordinator -
District 6
Lucille Thomas, Assistant Director,
Center for Library, Media and
Telecommunications
E. Trowbridge, Teacher - P. S. 13K
District 19
Barry Weider, Assistant Principal
District 16

FOREIGN LANGUAGE

DEVELOPER AND WRITER

David Weiss, Asst. Director,
Center for the Humanities and the Arts

REVIEWERS AND ADVISORS FOR REVISIONS

Chinese: Bernard Lee, Teacher,
Seward Park H.S.
Gary Lee, Teacher,
Murry Bergtraum H.S.
French: Emile Beux, Asst. Principal,
Herbert H. Lehman H.S.
Roselle Meyrowitz, Asst. Principal,
Midwood H.S.
German: William Muller, Teacher,
J.H.S. 93Q
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Curtis H.S.
Hebrew: Solomon Moskowitz, Associate in
Secondary Education, Board of
Jewish Education
Stanley Sobolofsky, Teacher,
J.H.S. 141X
Italian: Adele Farella, Asst. Principal,
New Dorp H.S.
Nives Roman, Asst. Principal,
Francis Lewis H.S.

Latin: Dr. Juno Blake, Teacher,
Stuyvesant H.S.
Dominick Cerasulo, Teacher,
Christopher Columbus H.S.

Russian: Anna Elman, Teacher,
South Shore H.S.
Sylvia Matzell, Teacher,
Bronx H.S. of Science

Spanish: Samuel LaRocca, Asst. Principal,
August Martin H.S.
Lester Schweitzer, Asst. Principal,
William H. Taft H.S.

FLES: Harriet Bryer, Principal,
P.S. 177Q
Eleanor Roth, Teacher,
P.S. 60Q

HEALTH EDUCATION

Melvin Warren, Assistant Director Health
Education, writer.
Revisions were based on field evaluations.

HOME ECONOMICS

DEVELOPERS AND WRITERS

Kathleen V. Rogers
Home Economics
Olga E. Sobelsohn
Assistant Director
Sylvia B. Anker and Claire S. Rosenthal
Supervisors

INDUSTRIAL ARTS

DEVELOPERS AND WRITERS

Herbert Siegel, Director
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Emanuel Gillers, Asst. Director
of Industrial Arts

David Berlin, Supervisor
of Industrial Arts - Special Education
Carl Brenner, Supervisor
of Industrial Arts

On Chin, Teacher-Trainer
of Industrial Arts - Special Education
Robert Fixler, Supervisor
of Industrial Arts
Nathan L. Friedman, Supervisor
of Industrial Arts

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Dorothy Aranoff, P.S. 251, District 29
Claire Pressman, P.S. 181, District 29
Louise Miller, P.S. 287, District 13
Arlene Lichterman, P.S. 100, District 21
Robert Stavrakas, Principal, I.S. 7-R
Gloria Saunders, Principal, P.S. 299-K
Alvin, Yurman, Principal, P.S. 203-Q
Loretta Boyce, Principal, I.S. 383-K
Laura Goodman, UFT Library Media Committee
Shirley Rappaport, New York City School
Librarians' Association

LIBRARY MEDIA

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Geraldine Clark, Assistant Director, Head
Library Unit, Center for Library, Media and
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School Library Media Centers, Center for
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Cathleen Mahoney, Elementary School Library
Media Specialist, Center for Library, Media
and Telecommunications
Betty Silvers, District Librarian, District 14
Mercedes Rowe, District Librarian, District 11
Lorrelle Henry, District Library Supervisor,
District 16
Carol Redding, Library Media Specialist -
I.S. 136

REVIEWERS AND ADVISORS

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Mercedes Rowe, District Librarian, District 11
Betty Silver, District Librarian, District 14
Rhoda Kleiman, Library Media Specialist,
JHS 167-M
Carol Redding, Library Media Specialist,
IS 136-M
Ethel Olicker, Library Media Specialist,
JHS 189-Q
Mary Knight, Library Media Specialist, JHS 263
Suzanne L. Burach, Pura Belpre Children's
Caravan, District 16
Marian Bauman, P.S. 309, District 16
Elaine Kaufman, P.S. 215, District 27
Marilyn Yaiger, P.S. 345, District 19
Jim Amato, P.S. 305, District 13

MATHEMATICS

DEVELOPERS AND WRITERS OF ORIGINAL MATERIALS

Frank J. Wohlfort, Asst. Director for
Mathematics & Science
Alice Lombardi, Mathematics Coordinator
District 24

REVIEWERS AND ADVISORS FOR REVISIONS

District Math Coordinators

Vincent J. Altamuro, Dist. 8
Kathleen K. Barry, Dist. 3
Jennie Berger, Dist. 16
Lillian Boyce, Dist. 17 (Aux. Trainer)
Shirley Brady, Dist. 17
Eric Calyo, Dist. 7
Janet Castellano, Dist. 31
Maria DeSalvio, Dist. 1
Louise M. Gemake, Dist. 4
Howard Goldstein, Dist. 18
Alfred Grab, Dist. 6
Zella C. Jackson, Dist. 5
Leah Karp, Dist. 11
Marvin Kreutzberger, Dist. 19
Aurora S. LaRocca, Dist. 32
Sandra Lightbody, Dist. 14
Mary-Etta Maynor, Dist. 10
Mark Mendes, Dist. 23
Dorothy S. Minsley, Dist. 26
Stephen Rappaport, Dist. 23
Miriam R. Revkin, Dist. 20
Judith Ann Ries, Dist. 8
Matthew Scaffa, Dist. 31
Audrey Simon, Dist. 25
Hyacinth D. Stevens, Dist. 7
Sophie C. Sussman, Dist. 2

CREDITS

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Beatrice P. Williams, Dist. 27
Linda Zern, Dist. 7
Robert Atkins, Asst. Princ.
John Adams HS
James Bruni, Prof. Math. Ed. Lehman
College
Aaron Buchman, Assoc. Bureau of Math Ed,
State Education Dept.
Edward Carroll, Prof. Math Ed. N.Y.U.
Jacob Cohen, Asst. Principal T. Roosevelt
H.S.
Terrance Conaty, Teacher, JHS 117M
Ira Ewens, Principal James Madison HS
Jerome Fisher, Asst. Principal IS 218K
Thomas Franks, Teacher, JHS 117M
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College
Blanche C. Gladstone, Corrective Math
Specialist - Title I Corrective
Mathematics Program
Edward Graybow, Teacher, JHS 117M
Cynthia Griffin, Teacher, JHS 117M
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Center for Math & Science
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Shore H.S.
Henry Leighton, Asst. Principal,
JHS 166K
Phillip Levine, Teacher, JHS 117M
Ira Lyons, Asst. Princ. IS 13M
George Mills, Principal, JHS 17M
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State Education Department
Donald Rosen, Teacher, JHS 117M
Jerome Rosofsky, Principal, JHS 189Q
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Harry Ruderman, Chairman Math, Hunter H.S.
Murray Soffer, Asst. Principal, IS 111K
Lucille A. Stovall, Coordinator - New York City
Corrective Mathematics Program
Bruce Vogel, Prof. Math Ed. Teachers College
Stephen S. Wroughby, Prof. of Math Ed.,
N.Y.U.

WRITERS AND/OR DEVELOPERS OF REVISIONS

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and Science
Charles Bechtold, Principal, P.S. 101Q
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Joseph Gehringer, Teacher, JHS 65M
Alan Ginsberg, Asst. Principal, JHS 125Q

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Marvin Kreutzberger, Math Coordinator,
Dist. 19
Alice Lombardi, Mathematics Specialist,
Center for Math and Science
Mary Teshara, Math Coordinator, Dist. 12
Leonard Zavlick, Asst. Principal, IS 167X

MUSIC

DEVELOPERS AND WRITERS

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Leo Sevush, Asst. Director
of Music
Milton Friedman, Supervisor
of Music, District 25
George Hall, Chairman
of Music, Taft H.S.
Elton Warren, Supervisor
of Music, District 9
Jeanette Carlstein, Supervisor
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Martin Gottesfeld, Chairman
of Music, Martin Luther King H.S.
Asta Hairston, Supervisor
of Music, District 17

PHYSICAL EDUCATION

DEVELOPERS AND WRITERS

Angela Zirpiades, Assistant Director,
Physical Education
Lillian Vitaglione, Movement Specialist -
P.S. 41 - wrote grades K - 6
Bernard Kirshenbaum, Assistant Director,
Physical Education - wrote grades 7 - 9
Revisions were based on field evaluations
and the new curriculum bulletin.

SCIENCE

DEVELOPERS AND WRITERS OF ORIGINAL MATERIALS

Sam Fried, Asst. Director, Science, Center
for Mathematics and Science, Center for
Curriculum and Instruction

Barry Wiesenfeld, Science Coordinator,
District 24

REVIEWERS AND ADVISORS

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Standing Committee, Asst. Principal,
Supervisor of Physical Science
Rose Blaustein, Science Coordinator,
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Arthur DeSantis, Science Coordinator,
District 25
Leonard Epstein, Principal,
P.S. 161K
Beatrice Fried, Science Coordinator,
District 17
Rahla Gold, Principal,
P.S. 92K
David Goldberg, Asst. Principal,
Science, J.H.S. 296K
Sylvia Hecht, Coordinator,
Bank Street College
Jay Littman, Asst. Principal,
Science, I.S. 320K
Benjamin Litwin, Asst. Principal,
Science, J.H.S. 223K
Joan Mulvaney, Principal,
P.S. 181K
Ronald Novins, Asst. Principal,
Science, I.S. 246K
Martin Schachter, Asst. Principal,
Science, I.S. 10M
Samuel Silverberg, Asst. Principal,
Science, J.H.S. 202Q
Lillian Silverman, Asst. Principal,
Science, I.S. 292K
Thomas Vinci, Associate Dean,
Graduate Studies, Fordham University
Alan Winkler, Science Resource Teacher,
District 22

SOCIAL STUDIES

DEVELOPERS AND WRITERS OF ORIGINAL MATERIALS

Pearl Abrams, Teacher, P.S. 26Q

Jerry Blumengarten, Teacher, J.H.S. 166K
 Carmen Farina, Teacher, P.S. 29K
 Marilyn Past, Asst. Principal, P.S. 89Q
 Betty Garrett, Asst. Principal
 Jeanette Hadley, Asst. Principal, P.S. 154M
 Floyd Kessler, Teacher, I.S. 142Q
 Joyce Rubin, Teacher, P.S. 276K
 Joel Shulman, Teacher, P.S. 108X

Alfred D. Herman, Principal, P.S. 139K
 Miriam Iversen, Teacher, P.S. 26Q

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 Florence Jackson, Center Director, Center
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 Albert Post, Asst. Director, Social Studies
 Geri Appel, Teacher, P.S. 34M
 Alan Argoff, District Supervisor, C.S.D. #22
 Martha Cember, Teacher, P.S. 236K
 Janet Ernst, Teacher, P.S. 34M
 Debbie Friedman, Teacher, P.S. 29K
 Diana Kendall, Global Perspectives in
 Education
 Elena Mancaruso, Teacher, P.S. 38K
 Jean Milpilineos, Teacher, P.S. 52K
 Shirley Pine, Teacher, P.S. 52K
 Lorraine Rhodes, Teacher, P.S. 29K
 Diane Rothman, Teacher, P.S. 29K
 Barbara Schaeffer, Teacher, P.S. 52K
 Zara Schenbaum, Teacher, P.S. 34M
 Andrew F. Smith, Global Perspectives in
 Education
 Lenore Wiesenbergl, Teacher, P.S. 236K

(Standing Committee)
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 Morris Brown, Asst. Principal, Port Richmond
 High School
 Bernard O'Kane, Asst. Principal, J.H.S. 218
 Larry Pero, Asst. Principal, John Dewey H.S.
 Irwin Rosenfeld, Asst. Principal, I.S. 44M
 Harvey Seligman, Asst. Principal, I.S. 253

WRITERS AND/OR DEVELOPERS OF REVISIONS

Florence Jackson, Center Director, Center
 for the Humanities and the Arts
 Albert Post, Asst. Director, Center for
 the Humanities and the Arts
 Jerry Blumengarten, Teacher, J.H.S. 166K
 Martin Cohen, Asst. Principal, Halsey J.H.S.
 Alfred D. Herman, Principal, P.S. 139K

TYPEWRITING

DEVELOPERS AND WRITERS

Norman E. Watnick
 Assistant Director,
 Business and Distributive Ed.
 Donald Donin
 Coordinator, Business and
 Distributive Ed.

REVIEWERS AND ADVISORS

Shirley Silvers, Dept. of
 Business, Queens Community
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 Robert G. Fleig, Bureau of
 Business Education, State
 Education Dept.
 Catherine Stapleton, President
 JHS Typewriting Teachers'
 Association
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 Alaire Mitchell (Project Editor)
 Gertrude Blaustein (Proofreading Assistant)

APPENDIX A
SUBJECT AREAS BY GRADE

Subject	K	Gr. 1	Gr. 2	Gr. 3	Gr. 4	Gr. 5	Gr. 6	Gr. 7	Gr. 8	Gr. 9
ART	98	120	142	174	199	226	260	282	308	344
COMMUNICATION ARTS	41	43	47	51	55	59	63	67	70	73
HEALTH EDUCATION	102	125	147	180	205	229	265		315	
LIBRARY MEDIA	104	127	149	182	208	232	414	414	414	414
MATHEMATICS	106	128	150	184	210	233	268	287	319	352
MUSIC	108	131	153	188	215	238	272	291	323	358
PHYSICAL EDUCATION	109	132	155	189	216	239	273	292	324	359
SCIENCE	112	135	158	192	219	242	275	296	329	364
SOCIAL STUDIES	117	138	162	195	223	247	277	303	337	372

(Numbers refer to pages for convenience in locating each subject at each grade level.)

Table 10-1. Consonant Correspondences in Various Positions *

[This chart, provided for teacher reference, is to be used at the teacher's discretion. Individual items are to be taught to the children as and when needed.]

Sound or Phoneme	Letter Label	Position			Sound or Phoneme	Letter Label	Position		
		Initial	Medial	Final			Initial	Medial	Final
/b/	b	bat	tuba	cab	/n/	ng	singer		sing
/k/	c	can			n		drink		
	k	kitten	baker	break	/p/	p	picnic	piper	drip
	ck		packer	sack	pp		supper		
	ch	chasm			/r/	r	rain	bearer	car
	qu	quick	liquor	opaque	rr		hurry		burr
/s/	s	sit			wr		wreck		
	ss		passer	pass	rh		rhetoric		
	c	city	racer		/ʃ/	sh	ship	smasher	lash
/tʃ/	ps	psalm			s		sure		
	ch	chip	catcher	rich	ci		specious		
	c	cello			ce		ocean		
/d/	d	doll	soda	mad	ss		passion		
/f/	f	fit	heifer	life	ti		nation		
	ff		baffle	cuff	/t/	t	teacher	meter	hit
	ph	photo	siphon		tt		sitter		
	gh			rough	pt				receipt
/g/	g	get	tiger	rag	bt		debtor		debt
	gh	ghetto			/θ/	th	thin	ether	path
	gg		bigger		/ð/	th	then	either	bathe
/j/	g	gym		rage	/v/	v	voice	mover	wave
	j	jump			/w/	w	work	shower	cow
	dg		ledger	badge	/ks/	x			box
/h/	h	house	ahead		/y/	y	yard	Sawyer	say
	wh	who			/z/	z	zoo	blazer	
/l/	l	lake	sailor	metal	s		loser		dogs
	ll		filling	hall	zz		nozzle		jazz
/m/	m	man	tamer	ham	/ʒ/	z	azure		
	mb		comber	tomb	s		measure		
	mm		summer		si		delusion		
/ŋ/	n	night	finer	hen					
	nn		sinner						
	gn	gnaw							
	kn	knit							

* Robert B. Ruddell, Reading-Language Instruction: Innovative Practices (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1974) pp. 297-298. Reprinted by permission.

Table 10-2. Vowel Correspondences **

Sound Label	Vowel	Letter Label	Example	Sound Label	Vowel	Letter Label	Example
Unglided or short	/æ/	a	at	Unglided or short	/a/	u	bus
		au	laugh			oo	blood
Glided or long	/ey/	a e	lane, ate			ou	enough
		ai	bait	Glided or long	/yuw/	u.e	mule
		ea	break			ew	few
		ei	rein	Unglided or short	/u/	oo	good
Unglided or short	/e/	e	men			u	put
		ea	head			ew	flew
		eo	leopard			ui	fruit
		ai	said	Unglided or short	/ɔ/	a	talk
		ie	friend			au	Paul
Glided or long	/iy/	e.e	Pete			o	dog
		e	be			aw	law
		ea	beat	Glided or diphthong	/aw/	ow	drown
		ee	beet			ou	loud
		ei	receive	Glided or diphthong	/ɔy/	oy	toy
		ie	belief			oi	coin
Unglided or short	/i/	i	bit	Note: an unglided or short vowel followed by -r is sometimes referred to as an r-controlled vowel	/ar/, /er/	ar, ea	cart, pear
		ui	build		/ir/, /ɔr/	ea, oa	ear, oar
		y	hymn		/ur/, /yur/	oo, u.e	poor, pure
		u	busy		/ar/	e	her
Glided or long	/ay/	i.e	bite				
		uy	buy				
		ie	flies				
		ai	aisle				
Unglided or short	/a/	o	hot				
Glided or long	/ow/	o.e	home				
		oa	boat				
		ow	show				
		o	go				
		ew	sew				

** Ruddell, *Reading-Language Instruction: Innovative Practices*, pp. 298-299
Reprinted by permission.

APPENDIX C
CURRICULUM PUBLICATIONS

PRINTED PUBLICATIONS

Available from:

Publication Sales Office
New York City Board of Education
110 Livingston Street
Brooklyn, New York 11201

ART

Art in the Elementary Schools
1963-64, No. 8: 146 p.

Art for the Middle School
1977-78, No. 3: 127 p.

Art Teaching Guides: Puppets and Puppetry
1968-69, No. 8h (Reprinted 1975):
20 p.

COMMUNICATION ARTS

Handbook for Language Arts: Pre K-Grade 2
1965-66, No. 8 (Reprinted 1975): 416 p.

Sequential Levels of Reading Skills:
Grades Pre K-12
1967-68, No. 4 (Reprinted 1970, 1975
1979): 324 p.

Handbook for Language Arts: Grades 3 and 4
1969-70, No. 6: 360 p.

Handbook for English Language Arts,
Grades 5-12: Reading and Literature
1967-68, No. 10 (Reprinted 1969,
1975, 1979): 324 p.

Handbook for English Language Arts,
Grades 5-12: Speech and Composition
1969-70, No. 21: 221 p.

Handbook for English Language Arts:
Grades 5-12: Language Strand
1974-75, No. 4: 286 p.

ENGLISH AS A SECOND LANGUAGE

ESL: Teaching English as a Second
Language in the Middle Grades
1967-70, No. 7: 190 p.

FOREIGN LANGUAGES

Chinese: Levels 1 and 2
1972-73, No. 7: 165 p.

German: Levels 1-4
1966-67, No. 11c: 222 p.

Hebrew: Levels 1-4
1966-67, No. 11b: 207 p.

Latin: Levels 1-4
1967-68, No. 19: 146 p.

Russian: Levels 1-4
1970-71, No. 6: 224 p.

HEALTH EDUCATION

Health Education in the Elementary
Schools
1969-70, No. 2: 249 p.

Health Education in the Secondary
Schools
1972-73, No. 10: 341 p.

HOME ECONOMICS

Home Economics Grades 7-8-9 **
1963-64, No. 4: 169 p.

Young New Yorker's Cookbook
1973-74, No. 9: 244 p.

Industrial Arts Woodworking: Secondary
Schools
1963-64, No. 10 (Reprinted 1969):
111 p.

MATHEMATICS

Mathematics: Pre K-1, Part 1
1966-67, No. 6a (Reprinted 1968,
1974): 67 p.

Mathematics: Pre K-1, Part II
1966-67, No. 6b: 150 p.

Mathematics: Grade 1 - Scope and
Sequence
1970-71, No. 2: 16 p.

Mathematics: Grade 2
1977-78, No. 11: 180 p.

Mathematics: Grade 3
1977-78, No. 9: 172 p.

Mathematics: Grade 4 and Grade 5 -
Scope and Sequence
1969-1970, No. 8 (Reprinted 1973,
1975): 46 p.

Mathematics: Grade 6 - Scope and
Sequence
1970-71, No. 4: 22 p.

Mathematics: 9th Year
1966-67, No. 4 (Reprinted 1969):
304 p.

General Mathematics: 9th Year
1964-65, No. 16 (Reprinted 1968,
1970): 270 p.

INDUSTRIAL ARTS

Ceramics for Secondary Schools
1961-62, No. 7 (Reprinted 1966,
1974): 130 p.

Industrial Ceramics
1971-72, No. 5: 133 p.

Drafting Experiences for Intermediate
School Pupils: A Resource Bulletin
for Teachers of Industrial Arts
1966-67, No. 9 (Reprinted 1970):
75 p.

Electricity - Electronics for Inter-
mediate and Junior High School
1970-71, No. 11: 196 p.

Graphic Arts Grades 7-8-9
1965-66, No. 13: 65 p.

Metalworking for Secondary Schools
1966-67, No. 7: 191 p.

Woodworking: Grades 7-8-9
1965-66, No. 14: 67 p.

CURRICULUM PUBLICATIONS, (cont.)

MUSIC

Teaching Music: Grades K-4
1978-79, No. 5: 99 p.

SCIENCE

Science: Grades K-2
1965-66, No. 7 (Reprinted 1968,
1970, 1975): 267 p.

Science: Grades 3-4
1966-67, No. 11 (Reprinted 1969,
1975): 339 p.

Science: Grade 5
1968-69, No. 6 (Reprinted 1974):
264 p.

Science: Grade 7
1971-72, No. 2: 313 p.

Science: Grade 8
1967-68, No. 20: 400 p.

Science: Grade 9
1968-69, No. 9: 309 p.

Grade 7: American History: Historical
Development of the United States
1967-68, No. 2e (Reprinted 1970):
130 p.

Grade 9: World Studies: Eastern
Civilizations - Regional Studies
(Revised Edition)
1969-70, No. 12: 397 p.

SOCIAL STUDIES

Grade 1: Living and Working Together
in the Community
1967-68, No. 26 (Reprinted 1970,
1976): 113 p.

Grade 2: How People Live in City
Communities Around the World
1968-69, No. 2: 199 p.

Grade 4: American People and Leaders:
How the United States Began and
Grew
1968-69, No. 3: 130 p.

CURRICULUM PUBLICATIONS

EXPERIMENTAL PUBLICATIONS

Available from:

Center for Curriculum Development
New York City Board of Education
131 Livingston Street Room 601
Brooklyn, New York 11201

ART

Art in the High School
May 1974: 102 p.

FOREIGN LANGUAGES

Foreign Language Revision Program:
French
June, 1975: 99 p.

Foreign Language Revision Program:
Italian
June, 1975: 99 p.

Foreign Language Revision Program:
Spanish
June, 1975: 102 p.

INDUSTRIAL ARTS

Industrial Arts Aerospace for
Intermediate and Junior High
School, Part 2
August, 1970: 120 p.

Graphic Arts for Secondary Schools
March, 1970: 159 p.

Paste Make-up -- A Teaching Guide
Summer, 1970: 76 p.

Plastics for Secondary Schools
June, 1967: 195 p.

School Shop Safety Manual
October, 1977: 225 p.

Teachers Handbook for the Handicapped **

** Available from:

Industrial Arts
N.Y.C. Board of Education
131 Livingston Street Room 511
Brooklyn, N.Y. 11201

MATHEMATICS

Fundamentals of Mathematics, Part 1
November, 1978: 144 p.

Fundamentals of Mathematics, Part 2
November, 1978: 136 p.

MUSIC

Teaching Music, Grades 5 and 6
December, 1975: 106 p.

SCIENCE

Investigating our Environment, Science
Grade 6
June, 1974: 248 p.

SOCIAL STUDIES

Grade 8: Urban Growth: Citizenship in
a Changing Society
December, 1978